ISSN 0704-3716

Canadian Translation of Fisheries and Aquatic Sciences

No. 5567

Smoked dogfish on the German market
Product development as a part of increased utilization of bycatches

K. Florvaag, and K. Ekroll

Original title: Røykt piggha pa det tyske markedet - produktutvikling som et ledd i økt utnytting av bifangst

Published by: Thesis for Export Marketing II (Student Project AE 8189), Møre og Romsdal Fiskeritekniske Høgskole, Alesund, Norway, 141 p., 1991.

Original language: Norwegian

Available from:
Canada Institute for Scientific and Technical Information
National Research Council
Ottawa, Ontario, Canada K1A 0S2

1992

130 typescript pages

92-07168/

Department of the Secretary of State of Canada Secrétariat d'État du Canada TRANSLATION LETTERHEAD - PAPIER À EN

MULTILINGUAL TRANSLATION DIRECTORATE
TRANSLATION BUREAU

DIRECTION DE LA TRADUCTION MULTILINGUE
BUREAU DE LA TRADUCTION

Originator File No. - Référence du demandeur	Department - Ministère	Division/Branch - Division/Direction	City - Ville
	Fisheries and Oceans	Industry Services	Halifax,N.S.
Translation Request No. - Nº de la demande de traduction	**Language - Langue**	**Translator (Initials) - Traducteur (Initiales)**	
2603034	Norwegian		JUN 18 1992

SMOKED DOGFISH ON THE GERMAN MARKET

Product Development as a Part of Increased Utilization of Bycatches.

Student Project AE 8189

Export Marketing II

Spring 1991

MRFH

By

Katrine Florvaag and Karin Ekroll

Prepared for: Möreforskning (Möre County Research Council)
OK Fish Ltd

UNEDITED TRANSLATION
For information only
TRADUCTION NON REVISEE
Information seulement

SEC 5 - 128 (89-01)

Preface.

This project is part of the 2-year study course on export marketing at the Möre and Romsdal County College of Fishery Technology. The student thesis should be a marketing study or other relevant research study requested by a company, educational institution or export organization.

We have been requested by Möreforskning Aalesund and OK Fish Ltd. in Målöy to study the German market for smoked dogfish.

We would especially like to thank our project supervisor Per Walde at MRFH/Möreforskning and Sigrid Husevåg Edler in OK Fish Ltd. for the support given us during the project.

In addition we would like to thank the Royal Norwegian Ministry of Fisheries, Möreforskning Aalesund and Wirth Endresen's Fund for makingit economically possible to complete this project.

Aalesund June 19, 1991

Katrin Ekroll

Katrine Florvaag

TABLE OF CONTENTS

PAGE

0. INTRODUCTION 9
1. HISTORICAL OVERVIEW 11
2. ABOUT DOGFISH - SPECIES AND DISTRIBUTION 17
3. INCREASED UTILIZATION OF BYCATCHES 21
   3.1 BACKGROUND 21
   3.2 OBJECTIVE 22
   3.3 EQUIPMENT AND CONSTRUCTION FOR FURTHER PROCESSING 22
   3.4 ORGANIZATION 23
   3.5 ECONOMICS 23
   3.6 DOGFISH AS BYCATCH 25
4. THE UNITED GERMANY 27
   4.1 THE PROCESS OF UNITING THE COUNTRY 27
   4.2 GOVERNMENT 29
   4.3 POLITICS - THE UNITY CHANCELLOR HELMUT KOHL 30
   4.4 ECONOMICS - THE PRICE OF UNITY 32
5. BILATERAL TRADE NORWAY - GERMANY 36
6. NORWEGIAN COMPANIES ON THE GERMAN MARKET 39
7. HOW TO TACKLE THE "NEW MARKET" IN THE EAST? 40
8. HOW TO SELL INTO GERMANY? BUSINESS CULTURE 41
9. OPPORTUNITIES AND THREATS ON THE NEW GREAT GERMAN MARKET 45
10. THE GERMAN FISHING INDUSTRY 46
   10.1 INCREASED SALES AND EMPLOYMENT 46
   10.2 SUPPLY 46
   10.3 NUMBER OF COMPANIES, VESSELS AND EMPLOYEES IN THE GERMAN FISHING INDUSTRY 48
   10.4 PRICE INDICES IN THE RETAIL TRADE 48
   10.5 THE FISHING FLEET 49
   10.6 FISHING AREAS 49
   10.7 CATCHES AND LANDINGS 49
   10.8 QUOTA DISTRIBUTION BETWEEN EC - COUNTRIES 50
   10.9 FOREIGN TRADE 51

PAGE

11. THE CONSUMPTION OF SEAFOOD IN GERMANY. TRENDS AND DEVELOPMENTS
  11.1 DEVELOPMENTS IN THE CONSUMPTION OF FISH AND SEAFOOD 53
  11.2 FISH SPECIES OF INTEREST NOW AND IN THE FUTURE 57
  11.3 PRODUCT TYPES NOW AND IN THE FUTURE 59
  11.3 IS THERE A TREND TOWARDS SMOKED PRODUCTS? 60
12. DOGFISH ON THE GERMAN MARKET 62
  12.1 GERMAN IMPORTS AND DOMESTIC SUPPLIES OF DOGFISH 62
  12.2 NORWEGIAN EXPORTS OF DOGFISH 64
13. THE EEZ (EUROPEAN ECONOMIC ZONE) TREATY - FREE ACCESS TO THE EC - MARKET 70
14. PREPARATION OF PRODUCT SAMPLES 72
  14.1 PRODUCT 1 72
  14.2 PRODUCT 2 75
  14.3 PRODUCT 3 75
15. QUESTIONNAIRE FOR THE CONSUMER STUDY 77
  15.1 DESIGNING A QUESTIONNAIRE 77
  15.2 THE QUESTIONS 77
16. CONSUMER DEMONSTRATION 79
  16.1 IMPLEMENTATION OF THE CONSUMER DEMONSTRATION 79
  16.2 SELECTION 79
  16.2 VALIDITY ERRORS 80
  16.4 RELIABILITY 80
17. RESULTS AND ANALYSES OF THE CONSUMER STUDY 82
  17.1 PRODUCT 1 82
  17.2 PRODUCT 2 89
  17.3 COMPARISON BETWEEN PRODUCT 1 AND PRODUCT 2 96
18. MEETING WITH THE GERMAN IMPORTERS 100
  18.1 HOW TO CONTACT THE GERMAN IMPORTERS 100
  18.2 PREPARATIONS FOR MEETING WITH IMPORTERS 100
  18.3 REPORT FROM MEETING WITH IVENS KRUSE GMBH IN KIEL 101
  18.4 REPORT FROM FRIEDRICH WILHELM LÜBBERT GMBH IN BREMERHAVEN 103
  18.5 REPORT FROM F.G. WENDT IN CUXHAVEN 105
  18.6 REPORT FROM ONDA HØFFERLE GMBH & CO IN HAMBURG 107

18.7 REPORT FROM ARFS GMBH & CO IN HAMBURG 109
18.8 REPORT FROM ANDREAS SIMONSEN GMBH IN HAMBURG 110
18.9 REPORT FROM FODECO HANDELSGESELLSCHAFT MBH & CO IN HAMBURG 111
18.10 REPORT FROM CARL MAASSEN IN DÜSSELDORF 113
18.11 REPORT FROM STUTTGARTER FISCHGROSSHANDEL CARL MOLL GMBH IN STUTTGART 114
18.12 REPORT FROM NORDSEE DEUTSCHE HOCHSEEFISHEREI IN STUTTGART 116
18.13 REPORT FROM FERDINAND BIERBICHLER OGH IN STEPHANKIRSCHEN 117
19. RESULTS AND ANALYSIS OF THE PRODUCT STUDY AT IMPORTERS 119
19.1 PRODUCT 119
19.2 PACKAGING 122
19.3 PRICE 124
19.4 BUYER INTEREST 125
19.5 EVALUATION 126
20. CONCLUSION 127
LITERATURE LIST 130
APPENDICES (QUESTIONNAIRE) NOT INCLUDED

SUMMARY.

Bycatches are today a resource that is largely wasted. Commercial utilization will increase potential incomes in fishing and processing operations without exploiting the resources above present levels and will therefore increase equity in the seafood industry. It is furthermore a high-priority objective in the Norwegian seafood industry to increase the degree of processing and thereby the value. Smoked dogfish is an established product in Germany and represents an opportunity for increased value for this fish species. The main goal for this study is to facilitate exports of smoked dogfish from Norway to Germany.

Exports from Norway to Germany have increased while imports have decreased in recent years. This is associated with the German dependence of imports from other countries. Norwegian companies must prepare themselves for and be able to meet a large growth in demand from Germany in the future, but this will largely depend on the success of the recovery of a reunited Germany. So far there are no recommendations for establishing directly in the former DDR since the road to the east has so far been through companies in the west. The German market is characterized as the hardest and most demanding in Europe, but there are no markets as large and with as high growth potential any other place in Europe. The Germans demand not only quality, but also punctuality, speed and decisiveness.

The consumption of seafood is increasing and the variety and selection for German consumers is great. Nearly 2/5 of the consumption consists of canned products, crabs, shellfish, delicatessen and smoked products. The majority opinion is that smoked products will experience increased sales in the future since these products have grown in recent years. Smoked seafood products have a 6 % market share on the German market today.

Germans import large quantities of fresh and frozen (p.2) dogfish which they smoke and sell as "Seeaal" (backs) or the delicatessen "Schillerlocken" (belly flaps). The price for "Schillerlocken" varied from 3.28 DM/100 g to 5.95 DM/100 g at the various seafood outlets we visited. The price for the dogfish backs

was about 1.70 DM/100 g.

The decline in exports of fresh and frozen dogfish to the German market is due to low prices to Norwegian fishermen relative to the labour involved and the extra costs involve in looking after dogfish as a bycatch. As a result, there has been a declining interest in a directed fishery for this species. To prevent this, there must be firm agreements in place regarding purchases at a guaranteed price for each trip if it is to be possible to have a steady supply of smoked dogfish for the German market.

Our studies on smoked dogfish fillets among German consumers showed that an interest for the product was definitely present. We brought with us two product samples, Product 1 which we had prepared ourselves at the pilot plant in the school, and product 2, which the plant in Målöy had prepared for us. The results of the evaluation showed that Product 1 would be preferred since Product 2 was considered to be too salty. However, Product 1 was not 100% satisfactory to consumers and must therefore be improved.

The product was too dry as a consequence of the raw material not being completely fresh. This must be corrected in future processing trials by always using a fresh raw material. In addition, the product had a thick membrane on the underside as a result of the fillets having been placed on a grate during smoking. This must be avoided by hanging the fillets to be smoked as practiced by German smoke houses when preparing "Schillerlocken". If all these conditions are met during processing , the product should have a good opportunity for success on the German market, according to the consumers participating in the study.

The product evaluation by German importers showed a (p.2) different result than the consumer study. Several of the importers meant that it was a good idea to utilize the backs by making fillets from them. However, they felt that it would most likely be a difficult product to sell on the German market since consumers do not know "Dornhai" (dogfish). They therefore will not associate it with the popular product "Schillerlocken" since hardly any consumer knows from which fish species this product has been made.

That the product was vacuum packed also played a decisive role in their evaluation. Vacuum packed seafood is not commonly available on the German market where practically all seafood is sold frozen or fresh to the consumer. The opinion of the importers is therefore that the opportunities for exports of smoked dogfish backs and "Schillerlocken" are greater for fresh products than for vacuum packed dogfish fillets.

The divided opinions about the product among consumers and importers can be quite confusing, but consideration must be given to the fact that most importers were presented with Product 2 which was rated lower than Product 1 among consumers. Our recommendation is therefore that the product idea must not be rejected, but that more thorough marketing studies must be made on this product in the German market. Product samples must than be 100% perfect and prepared according to suggestions above.

INTRODUCTION

The objective of this study was to facilitate increased exports of smoked dogfish from Norway to Germany and the study is being implemented in cooperation with OK Fish Ltd. and Möreforskning.

The study is part of the project "Increased utilization of bycatches" that Möreforskning is working with.

The background for the study is the resource shortage that has hit the Norwegian fishing industry in later years, especially within the groundfishing sector. The groundfish processing sector has problems with raw material supplies at the present time and are looking for alternative supplies.

Utilization of bycatches is an important link in the readjustment needed to save the Norwegian seafood industry. Commercial utilization will increase income opportunities in fishing and processing industries without exploiting resources above current levels.

The study should contribute to better profitability and resource utilization through increased knowledge on bycatches. This includes species selection, occurrence and resource base, utilization, markets and prices.

The increased interest in bycatches has led to the establishment of buying stations for dogfish both from the inshore fleet and the bank (mid - and offshore) longline fleet. A cooperative commitment must be established between vessels and processing plants ashore. The vessels must be guaranteed delivery of bycatches at a reasonable price to prevent dumping of possible new sources of income. Shore based processing plants must at the same time be ensured that no outsiders can come in and outbid them when this fishery has been demonstrated to be profitable by them.

It is furthermore a high priority objective for the (p.5) Norwegian fishing industry to increase the degree of processing and thereby the value added component of the product. Smoked dogfish is an established product in countries like Germany and represents an opportunity for increasing the value added component for this fish species.

1. HISTORICAL OVERVIEW

Fishermen along the coast have always known the dogfish and usually it is considered to be a pest. They destroy gillnets, eat the fish in the nets or take the bait off the hooks of longlines. It is furthermore known that dogfish chase away valuable fish such as herring. Dogfish were usually thrown overboard again, or they were brought ashore and used for fertilizer or as fuel.

In spite of this, dogfish were in the period up to and during the first world war used as a food fish in some districts. In Solund and Askvoll the fish were caught for the liver. If other fish were scarce, dogfish were also eaten.

During the first world war dogfish became an export article for Norway. As a neutral country Norway could export everything we could catch to Germany and other countries that were suffering from food shortages. There was therefore also a considerable interest in non traditional species and Germany became an important market for iced dogfish.

Improvements in equipment and fishing methods after the first world war led to an increased fishery for dogfish. This fishery was at that time chiefly pursued by fishermen from Nordmöre county. In the 1930's, fishermen from the Målöy district started to take over.

There are several reasons that fishermen from this district came to be the center for the fishery for dogfish. It is assumed that the abundance of dogfish was as great as north of Cape Stadt. In addition, a fleet and a processing industry with sufficient capacity to take any landings had grown up. The establishment of ferry services between Western Norway and Germany and England also led to new opportunities for faster and better transport. It should also be remembered that fishermen in the southern part of the country had shorter travel to the fishing grounds, enabling them to deliver fish of better quality.

Dogfish was a solution for many fishermen in the tough 1930's, and when Nordmöre already had shown the way on how to catch and market this species, many fishermen in the Målöy district had a new opportunity to survive the crisis.

In this period it was therefore Germany and England that became the chief markets for dogfish from Western Norway. Traditional fish species such as cod, haddock and flatfish had strong competition from German-caught fish of the same species and from imports from Denmark and Iceland. Conditions were not the same for dogfish. Even if skin - on dogfish were landed by German vessels, it was first and foremost Norwegian skinned dogfish the fish buyers in Hamburg preferred. The main reason was that Norwegian dogfish was of much better quality.

Dogfish exports to Germany consisted of two products. Belly flaps was a very popular product with Germany as the sole market. Exporters had problems supplying enough of this product. In Germany the belly flaps were lightly salted and smoked and marketed as "snacks" under the name of "Schillerlocken". The bulk of dogfish exports was still dogfish fillets. The fish processing industry in Hamburg utilized these in two ways:

- The canning industry packed cooked dogfish in jelly and marketed the product as "See - Aal". The German fish processing industry also salted and smoked the fillets, and consumers also purchased dogfish fillets fresh for frying. However, the belly flaps never achieved a higher price than ordinary dogfish fillets.

In England dogfish was used as a food fish earlier than in any of the other countries. In this market dogfish became a (p.8) desirable product as raw material for fish and chips. In addition to having a good flavour, the consumption of frying fat was lower since dogfish has a relatively high fat content.

During the Second World War,1940 - 1945, restrictions imposed by the occupying German forces and special market conditions led to a decline in landings. In this period some of the landings were directed to Flesland Fabrikker in Målöy and much of this was used for so - called "crisis" or emergency food. Large quantities were taken by vessel to Åndalsnes, and from there by railway to Oslo. Since there were good supplies of conventional and well - liked species in Western Norway, very little dogfish was consumed there. In Eastern Norway, however, the dogfish was sold in fish markets and fish shops. Since supplies of other fish were often insufficient, housewives did not hesitate to prepare and serve dogfish. Perhaps they accepted dogfish as a food fish because they did not know the fish itself - only the delicate fillets. The German occupation forces also probably consumed quantities of dogfish in this period. Dogfish was a well - known and desirable fish species to many Germans. The exports of dogfish to Germany stopped in the last years of the war while exports of other fish species increased. The reason for this was probably transportation difficulties. While exports of other species were carried out by railway, delicate species like dogfish could not tolerate this form of transport.

After the Second World War there was a sharp increase in dogfish landings. From 1946 to 1963-64 landings increased tenfold. Fishermen have received relatively low prices for dogfish throughout this period, but first hand prices did increase from 0.25 NOK/kg to 0.50 NOK/kg. During this period, a decline in participation in the fishery was counteracted by a sharp increase in productivity.

Market developments after the war were characterized by (p.9) marketing difficulties. The first years after the war before Germany could again start to function economically, Germany was lost as a market. Exports to Germany did not start up again until 1949.

Dogfish exporters therefore had to attempt to get into the traditional markets, primarily England, but also Belgium, Holland and France. England naturally became the chief market for dogfish and took yearly from between 60 to 80% of Norwegian dogfish exports. However, the fishery had to be regulated since the British market could only take limited quantities of Norwegian dogfish. At times the fishery had to be stopped completely. For example, when the Lofoten fishery was going on, British exporters preferred to import fresh cod rather than dogfish.

In the 1948 - 1949 period, new freezing plants were built in Norway which were able to keep storage temperatures as low as

-35 C. This led to an increase in the production of frozen dogfish, but it became obvious that the fish had to be sold within 2 months after it had been frozen. The reason is that dogfish turned brown and the quality deteriorated since the excretion of ammonia from the fish flesh had started. The new freezing plants did not solve the problems as had been hoped, and this meant that markets could be regulated only to a limited extent. The sale of fresh dogfish was in many ways a gamble until 1962 when new freezing techniques were developed.

At about the same time there was a gradual shift from sea transport to land transport. Shipping times were shortened and the strict quality requirements demanded by customers could easier be met. It was also important for the exporters that they gained control over exports enabling them to reach markets on the most important days and to be able to sell at optimum prices.

In the 1945 - 63 period it was therefore England that (p.10) was the most important market for dogfish. Dogfish fillets iced in 40 kg boxes, were sent by ship to Newcastle and then by rail to London. Frozen dogfish was not sold by exporters until 1957.

West Germany resumed imports of dogfish in 1948 ,but exports did not reach pre-war levels until the 1960's. West Germany became the first large customer for frozen dogfish. From 1952 to 1957 exports increased from 311 to 2200 tonnes, and almost all of this consisted of frozen belly flaps for West Germany. The reason for the ready acceptance of the frozen dogfish by importers is that they use relatively little of the fresh product. A frozen raw material is better suitable for smoking since it absorbs the smoke better.

France returned as a customer in 1949, chiefly for fresh, iced dogfish. Customers were initially chiefly institutional customers such as hospitals and boarding schools. Exporters in Målöy arranged demonstrations for institutional customers through their agents in Boulogne. School children seemed in particular to appreciate dogfish.

Belgium and the Netherlands returned as customers as soon as exports started and have been stable and growing customers for fresh dogfish. Attempts were also been made to develop a market in Italy. The first trial shipment was sent there in 1952 and Italy soon became an important market. Italy has always been the best paying market for dogfish fillets, but Italians also have the strictest demands to quality. Since dogfish landings increased in the early 1960's, sales contracts were also signed with countries in Eastern Europe. However, it was only in the years of record landings, namely 1961, 1962 and 1963, that it was deemed economically feasible to sell into these markets.

From the record fishery in the early 1960's, landings dropped by half by 1967. The fishery itself has developed from an exclusive inshore fishery to mainly an offshore fishery.

The pattern in the fishery has been as follows: Late in the fall and winter dogfish were found close to shore together with herring schools and were fished in this area. After the herring had spawned in February - March, the dogfish schools followed the herring westwards in the ocean. The fishery then took place in the Shetland - Orkney - Hebrides area into June and started up again at the end of August. From 1968 a fishery has been carried out from August to Christmas in the southern North Sea and the rest of the year on the Shetland grounds.

Fish exporters,together with the refrigeration company Kverner Kulde Ltd., developed a cold storage method in 1962 that gave stable storage temperatures in the -40^0 to -42^0C range. Under these storage conditions it was possible to keep frozen dogfish for 18 - 24 months without any quality deterioration. The result was that exporters realized higher prices for their products and they could at any time supply the market with the quantities of fresh dogfish that gave the best prices and profits. When demand and prices dropped, the dogfish were frozen. The frozen product was sold in periods of low landings, especially in the summer months when there is practically no fishery. The result was a sharp increase in dogfish prices.

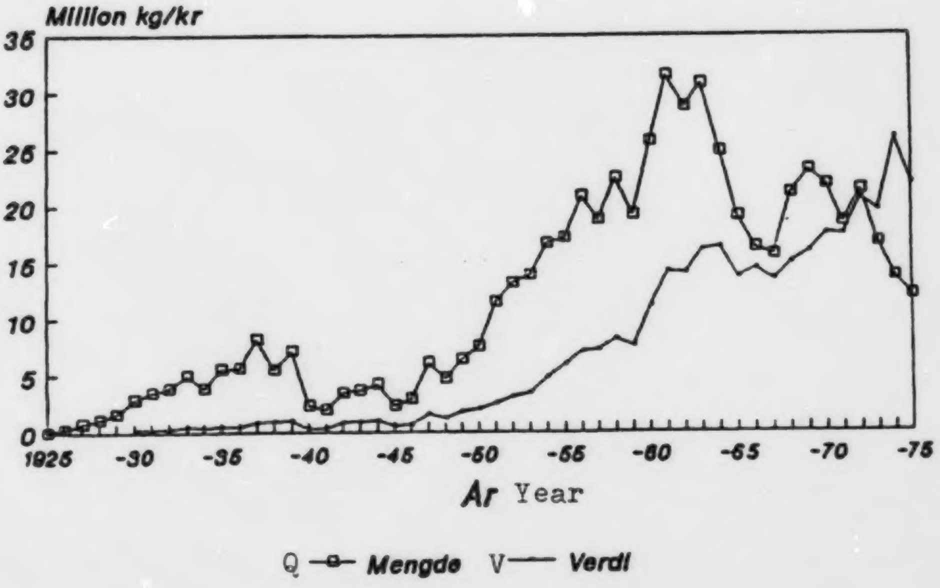
Market developments in the period from 1963 to 1975 show that

France passed England as the most important customer for fresh dogfish. The sale of frozen dogfish to France also increased even if England is still the most important market (except for (p.12) the West German export of chiefly belly flaps).

Sales to the Netherlands and Belgium kept up until 1972 when landings were still around 20,000 tonnes. However, when landings dropped all the way down to 12,000 tonnes in the years 1973, 1974 and 1975, the exports to these countries have declined. The best paying markets have been buying a relatively larger part of total exports. Sales to Italy have also been good.

The characteristics of export sales of dogfish are that, relative to the other fish species such as cod, haddock, mackerel etc., sales of large quantities have been made to importers. These have then sold the product to end users such as institutional customers (canteens, hospitals) and restaurants.

QUANTITIES AND VALUE OF DOGFISH EXPORTS 1925-1975



Figur 1.1 **Mengde og verdi av pigghåeksporten 1925-1975.**

Figure 1.1 Quantities and value of dogfish exports 1925 - 1975.

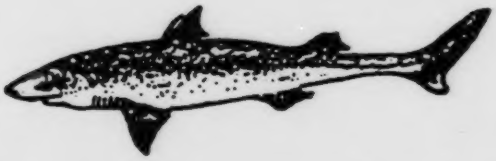
2. ON DOGFISH - SPECIES AND DISTRIBUTION

The dogfish, *Squalus acanthias*, is a small shark species found everywhere in ocean areas with the exception of high Arctic and Antarctic oceans. The dogfish in the North Atlantic that this study refers to can be found in temperate and sub-arctic areas. In the Eastern Atlantic they occur from West Africa to Southern Iceland and the Barents Sea. Dogfish are also found in the Mediterranean and Black Seas. Principal occurrence areas are from the Atlantic coast of France, around the British Isles and up to Southern Scandinavia. Dogfish are especially plentiful near the Orkney Islands and Shetland and along the West Coast of Norway. They are found on both sides of Greenland south of the Arctic Circle and in the Western Atlantic south to North Carolina with some strays as far south as Florida and Cuba.

Depth distribution is from ca 10 m down to about 100 m which is the normal, but dogfish have been found as deep as 950 m.

Dogfish travel in schools, preferably over muddy bottom and at sea temperatures of 6-15°C. The schools can be extremely large. In the British Channel over 20,000 dogfish were once taken in one seine set. Several hundred dogfish have been taken at a time in Nordic waters.

The dogfish has paired pectoral and pelvic fins, but no anal fins. The two dorsal fins are both preceded by sharp, heavy, fixed spines. The spines contain a poison. These characteristic spines have given the fish the name spiny dogfish.



Figur 2.1 **Pigghå (Squales acanthias).**

Figure 2.1 **Dogfish (*Squalus acanthias*)**

Females can reach a length of 123 cm and a weight of 9 kg while males reach 90 cm and 6.8 kg. The average weight for a fully grown dogfish is between 5 and 6 kg. The average weight of dogfish landed is between 1.5 and 2 kg.

Dogfish has the well developed sense of smell common to sharks. The sensory organs themselves are depressions on the underside of the snout. The inside of the depressions are folded and the sensing cells have hairlike protuberances that stick out into the cavities. When the fish swims, the flow of water will pass over the sensory organs. Experiments have shown that if the "nostrils" of a dogfish have been plugged, the fish will swim past the bait that it would usually have found. The sense of smell is therefore of great help to the dogfish when it is hunting for food and also explains why it will bite willingly both night and day.

The skin of the dogfish is built up of small scales which makes it very rough. Vision and hearing are good. The ear also acts as a balance organ and speed indicator in addition to its hearing function.

The lateral line organs are closely connected with the hearing organs. These can sense differences in pressure and therefore sound waves, such as splashes in the water. The phenomenon that sharks gather in large schools when meat, blood etc. are thrown overboard is due to the fact that sounds are recorded immediately, and from great distances, before the shark can smell what it is.

Dogfish cruise around everywhere they can find food; the most popular being herring and gadoids, but also invertebrates like worms, squid, crabs and shrimp. It is known that sharks are voracious fish, and dogfish are no exception. In a Canadian study of 1000 dogfish stomachs, red, green and brown algae were also found in addition to the above mentioned foods. Jellyfish were also found. As many as 87% of the stomachs were empty. The explanation is that dogfish has a very rapid rate of digestion of foods. This also explains why it is so voracious.

Dogfish grow slowly and reach sexual maturity late. Females generally become sexually mature at a length of 75-80 cm. This corresponds to an age of 12 - 14 years. Males become sexually mature at a length of 60 - 65 cm corresponding to an age of 9 - 11 years. Dogfish can be up to 25 years old.

It appears that females come closer to the coast when the young are about to be born, usually from November to January. The gestation period is long, 18 to 22 months. Each oviduct contains one to seven embryos in a joint capsule. During development the embryos become free since the capsule disappears. Dogfish usually have 4 - 8 young that are 20 - 33 cm long when born.

Dogfish have young only every second year. It is assumed that copulation takes place shortly after the birth of the young. Since females do not become sexually mature until 12 - 14 years old, a dogfish will not deliver more than 40 - 50 young in her lifetime. Dogfish stocks must therefore be vulnerable to heavy fishing even if there are no wide fluctuations in abundance due to natural causes.

The flesh has a fat content of 7% and it contains ammonia like other shark species. The fat means that the flesh will get a rancid flavour if the fish is left for long at ordinary room temperature. The ammonia liberated from the flesh can give a sharp urine odor. Dogfish therefore set strict demands both on fishermen and processors if the quality of the products is to be good.

	Cod	Herring	Sharks	Shellfish	Muscle of Poultry	Muscle of Mammals
	Torsk	Sild	Haj	Skaldyr	Muskel af fjerkræ	Muskel af pattedyr
Total-N-ekstrakter	1200	1200	3000	5500	1200	3500
Total frie aminosyrer acids	75	300	100	3000	440	350
Arginin	< 10	< 10	< 10	750	< 20	< 10
Glycin	20	20	20	100-1000	< 20	< 10
Glutaminsyre acid	< 10	< 10	< 10	270	55	36
Histidin	< 1,0	86	< 1,0	-	< 10	< 10
Prolin	< 1,0	< 1,0	< 1,0	750	< 10	< 10
Kreatin	400	400	300	ingen	-	550
Betain	ingen	ingen	150	100	-	-
Trimethylaminoxid	350	250	500-1000	100	0	0
Anserin	150	ingen	ingen	ingen	280	150
Carnosin	ingen	ingen	ingen	ingen	180	200
Urinstof Urea	ingen	ingen	2000	-	-	35

Tabell 2.1 Innhold av N-holdige ekstraktstoffer i muskelvev hos forskjellige dyr (mg/100g).

ingen = none

Table 2.1 Contents of N - containing extractives in muscle tissue of various animals (mg/100g)

3. INCREASED UTILIZATION OF BYCATCHES

3.1 BACKGROUND

The rationale for the project on increased utilization of bycatches at Möreforskning is the reduced resource estimates that have led to sharply reduced cod quotas for the offshore longline fleet. The other resources that this fleet depend on are also heavily exploited and can therefore not compensate for reduced cod quotas. Utilization of bycatches is an important link in the readjustment needed to rescue the Norwegian seafood industry through the first half of the 1990's.

Bycatch is a resource that is chiefly wasted at the present time. Commercial utilization will increase incomes for fishermen and processors without further exploitation of resources. The profitability of a plant can be brought up to an acceptable level and therefore contribute to strengthen the net worth in the seafood industry.

Bycatch utilization can be an important link to maintain the competence in the Norwegian seafood industry through a difficult period.

The project further develops cooperation between processors and exporters in the industry, something that has been shown to very important for both sectors. The porbeagle fishery from Målöy also was initiated through an agreement on delivery in advance.

The bank longline fleet in the northern part of Western Norway (about 70 vessels), are today fishing mostly for ling and cusk along the Norwegian coast, in EC waters and off the Faroe Islands. Some of the fleet also pursues a directed fishery for cod, haddock, Greenland halibut (Greenland turbot) and ocean catfish along the Norwegian coast and in the Barents Sea. The fishery for dogfish that comprised a considerable part of the resource base, started on a small scale in 1989. The fleet also lands bycatches of several species such as redfish, monkfish, skates, halibut, Greenland halibut, cod, haddock and pollock, and in the past year the fleet also lands greater forkbeard (forked hake) and dogfish as bycatch.

The economic situation for most of the fleet is critical due to the sharply reduced resources for this fleet in the 1980's. The fleet has attempted to compensate for this by increasing efforts, mechanizing baiting and the use of more efficient hooks. But in spite of these efforts, it has not been possible to prevent the scrapping of several vessels and many more have applied for scrapping compensation.

3.2 OBJECTIVES

The study should contribute to better profitability and resource utilization through increased knowledge about bycatches. This includes species selection, occurrence and resource s, utilization, markets and prices.

Better utilization of bycatches is an initiative receiving a high priority in the action plan for the seafood industry in Möre and Romsdal counties.

3.3 EQUIPMENT AND CONVERSION FOR SECONDARY PROCESSING

There will be a requirement for a freezing plant for raw materials when the fleet converts to landing frozen fish. Opportunities for imports of frozen raw materials most often occur in the form of frozen fish.

Many longliners have now landed forkbeard and these landingds were at times so large that there was not enough capacity ashore to handle the fish. Some buyer exploited this by offering low prices for the bycatch when they bought the principal catch. This led to many examples of fishermen not keeping on board several tonnes of fish.

A freezing plant would have helped the fleet to obtain a(p.19) reasonable price for the bycatch and to level off peaks in landings enabling them to supply products throughout the year. As mentioned above, it is unfortunate that the buyer of the principal catch automatically also buys the bycatch. It would be an important incentive to get better prices when there are separate plants to handle these species. Purchase agreements with fixed prices are now being attempted at Fiskeproduct Ltd.

Freezing of landings could be practical if the products are thawed and then filleted etc. in the plant, or when receiving landings of inshore fresh fish. There would therefore be a need for a plate freezer and a freezing tunnel. The secondary processing methods will decide if there are requirements for cold storage facilities for finished products. Demands for flexibility will probably lead to demands for a cold storage facility in any case.

3.4 ORGANIZATION

The project must be based on responsible coordination between vessels and shore facilities. A business plan must be agreed to whereby the vessel could be guaranteed delivery of the bycatch at reasonable prices and that outsiders could not come in and outbid the plant when the fishery had been shown to be profitable. Fishermen must still be ensured a share of profits that can be generated in this fishery, but on a more long term basis.

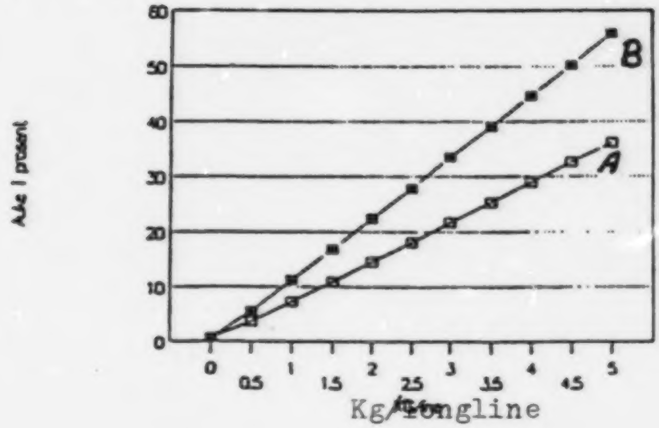
In reality, the concept deals more with forms for integrated production organized between companies, or between vessel owners or operators and processors.

It is possible to make agreements in advance on landings of catches on these conditions:

a) The contract should be signed before the trip started
b) The price should be established in the contract
c) A new contract should be made for each trip

3.5 ECONOMICS

An increase in bycatch will naturally increase the income from the gross catch. Since the bycatch to a minor degree affects variable or fixed costs, the increased landings will almost all contribute to catch shares. Catch share is gross catch income less operational expenses. The percentage increase in share catch will thereby be larger than the percentage increase in gross catch. Catch share is divided between crew and vessel according to fixed percentages. Increases in shares are therefore proportional to increases in catch shares.



Figur 3.1 Prosentvis økning i bruttofangstinntekt (A) og mannslott (B) som funksjon av økning i antall kilo bifangst pr. line. (Kilde: Arbeidsrapport fra Møreforskning; Bifangst fra banklineflåten)

Figure 3.1 Percentage increase in gross catch income (A) and crew share (B) as a function of increased bycatch per longline in kilos. (Source:Working paper from Möreforskning;Bycatch from bank longline fleet).

It can be seen that the fleet can increase its catch tonnage considerably if more bycatches could be brought in. Some of (p.21) the species could possibly be subject to a directed fishery. Certain areas that have not been viable for longlining earlier can now be fished in that the bycatch makes it viable. The areas that seem to be able to yield the largest quantities and most species are the areas from Shetland to Ireland, Rockall and the Faroe Islands. This is probably due to oceanographic conditions since temperatures are higher in these areas.This allows immigration of southern species into these areas.

The economic benefits that bycatches could have for the fleet are dependent on finding uses for the catches at acceptable prices.

This will require increased efforts both from the fleet, the industry and R & D institutions.

3.6 DOGFISH AS A BYCATCH

Earlier there was a regular directed fishery for dogfish, but a decline in the stocks led to a stop in this fishery. In recent years stocks seem to have recovered somewhat, and a directed fishery for dogfish has again started. The species has in addition become more plentiful as a bycatch in inshore and midshore fisheries.

The bycatch tonnages of this species are quite variable since dogfish occur in schools. As a bycatch it is more plentiful in the North Sea, along the Norwegian coast and along the continental shelf from Tampen to Ireland. At the Faroe Islands and Rockall only insignificant quantities of dogfish are taken as a bycatch.

During the spring of 1990 the fleet has started to take care of bycatches of this species. The dogfish are skinned on board and delivered frozen with 3-400 kg per trip reported. This gives an average daily yield of about 10 kg.

Products of current interest are dogfish fillets (p.22) packed as loins combined with smoking of belly flaps. Trimmings could be used in minced products. These could be incorporated into burgers, sausages or other fish delicatessens.

An advantage with respect to quality would be to skin the dogfish at sea and pack fillets and belly flaps separately. It is expected that marketing opportunities would then be best.

Price/market:

Skinned, frozen dogfish are paid 3 - 10 NOK/kg plus price subsidy. On October 19, 1990, a first hand price of 10 NOK/kg was paid delivered in Aalesund. A price subsidy of 3 NOK/kg was given.

Price examples according to reports from the Export Committee for Fresh Fish in 1990 show:

Paris: 26 - 32 NOK/kg

Milan: 37 -50 NOK/kg
London: ca. 47 NOK/kg
The prices refer to fresh, skinned dogfish.

Competition:

Dogfish fillets are today exported from USA to the UK, while the belly flaps go for smoking in Denmark and Germany.

The largest catching nations for dogfish are:

France 13,523 T, UK 8,908 T, Eire 8,706 T, Norway 3,608 T. (Statistics from 1987. World catch: 46,975 T)

4. THE UNITED GERMANY (p.23)

4.1 THE PROCESS OF UNITING THE COUNTRY

World history was written in Europe on 3. October 1990.East Germany (DDR) ceased to exist and Germany was again united into one country. In reality this finally ends the Second World War. This is possible only because the cold war is now over.

"One people, two countries" has for 40 years been a German slogan. Now it is again talk about one country. But the fall of the Wall and the opening of DDR for free inspection has shown that it is no longer talk about one people. After having lived in totally different societies for 40 years, East - and West Germans are today strangers to each other. The reality today is therefore on country, but two people.

This does not mean that DDR should be maintained. But it means that one must be prepared for a very difficult process of unification where the social and human problems are as great as the economical.It is not easy to build bridges between very different Germans without risking the creation of envy and dissatisfaction.

In his speech on the German unity day, President Richard von Weizsäcker criticised the West Germans that felt that German unification should not cost them anything economically and that it is not their concern that their new countrymen live in uncertainty and poverty. "No way leads past the realization that to unite means to learn how to share", said Wensäcker. "German unity cannot be financed by loans alone. Publicly and privately it means to change, to help, to save and to give".

It is decisive for German unity to become a reality in daily life that such a will exists and not only as a governmental (p.24) and administrative occurrence. Forty years of totally different governments have pulled Germans apart from each other. Different attitudes, different experiences, different cultural identities are all factors that will take time to break down and even out. German unification will therefore take time. The unification day was therefore more of a start than a goal. Only now has the work to create German unity started in earnest.

Economically the unification could not have come at a more advantageous time. West Germany has gone through an almost unbelievable period of unbroken economic growth. The country has been able to export almost everything they have been able to produce, and the money bins have been full. There was plenty to cover the shortfalls in the five new provinces.

However, the price has today turned out to be higher than anyone imagined. An economic and social collapse is now rolling over the former DDR. Unemployment is rising day by day. Investment are not coming; they do not pay. A number of cities are on the edge of bankruptcy and threaten with having to close schools. To prevent a complete catastrophe, the Government in Bonn proposed in March of this year an emergency program of 10 million marks (close to 40 million NOK). The industry in the earlier DDR is just not able to compete. The conversion to western standard is much more difficult than anyone had imagined. This applies to quality and output per employee. While many only a year ago thought that privatization should solve most problems, it is now obvious that hardly a single industrial enterprises is strong enough to manage the necessary structural changes on their own. In order to able to compete it is not only necessary to carry out extensive modernizations from top to bottom in the plants. New products that can be marketed must also be developed. This requires both time and money.

The East Germans themselves must accept a small part of the responsibility for the misery. Even if wages are low relative to the west, the introduction of DM has led to a considerable sale of consumer goods. But nobody wants East German products. Even when their products can compete both on price and quality, East German products do not have a chance. Berliners do not want the excellent apples from neighbouring Potsdam, but instead they are brought in from West Germany. The same applies to other consumer goods. People shy away from products with East German packaging, even if it can lead to the neighbor becomes unemployed.

The result is that even the optimists now face the possibility that 4 million of a labor force of 9 million could be unemployed this year. The problems can not be solved without massive transfers from West Germany. However, there it is also increasing dissatisfaction with what is taken as East German demand mentality. A planned protest march towards Bonn could quickly end in clashes and fights between East and West Germans.

There is no doubt that all of Europe is now on the sidelines watching developments in Germany and what will evolve over the next few years.

4.2 Government

The formal head in the united Germany is president Richard von Weizsäcker. The president is elected for five years and can be reelected once. He is elected by Bundestag members and a corresponding representatives from provincial assemblies.

However, the power is held by Chancellor Helmut Kohl. (p.26) The German political system gives the chancellor wide political power. The chancellor is elected by the Bundestag after a suggestion from the president. The president then appoints government members after suggestions from the chancellor. The Bundestag can only show non-confidence by electing a new chancellor, so-called constructive non-confidence. The chancellor can also himself ask for non-confidence, and if the Bundestag does not elect a new chancellor within 21 days, the president has to call an election.

The central legislative authority is vested in the national assembly which consists of two chambers. The Bundestag, which is the lower, directly elected chamber, and the Bundesrat which is composed of representatives for provincial governments and appointed by them. Elections to the Bundestag take place partly as majority elections in one man ridings and partly as proportional elections in the provinces.

Provincial governments are headed by a premier responsible to a Landestag. In the three largest cities (Berlin, Hamburg, Munich) a city council (Senat) is elected which corresponds to a Landestag.

The three cities are headed by a mayor who corresponds to the premier. The Landtags and Senats pass acts in a number of fields where the Bundestag does not have exclusive rights. These include certain taxes and fees, police, the health sector, education and communication.

Representatives are also elected to assemblies at lower levels including municipalities and counties.

All representatives are elected for 4 year terms. The voting age is 18 years and to be elected a person must be 21 years old.

4.3 POLITICS - the unity chancellor Helmut Kohl

The demonstrations that took place in March/April this year in the former DDR were aimed at the mass unemployment in Berlin, Leipzig, Dresden, Zwickau and Eisenhüttenstadt. The largest demonstration took place in Leipzig where about 80,000 participated. "Yesterday Honecker and his gang, today new liars everywhere", said the text on several posters.

The bitterness over what is considered a betrayal is notable. People feel they were fooled by false promises before the election in December. At that time it was represented as if the upturn would happen immediately if only Kohl would get his mandate to continue in power.

The Minister of Finance, Jürgen Möllermann ,has admitted that the government has underestimated the problems and he now expresses a cautious hope that the upturn should start in 1992. At a press conference in Bonn he also said that the increase in taxes will be necessary for financing the rebuilding of the five new provinces in the east. These is a completely new song. Before the election in December Helmut Kohl said time and time again that tax increases as a result of German unification was not under consideration. However, the denials became less and less vehement as the problems in the east magnified in the fall.

Helmut Kohl has won all his elections by spreading optimism and hope for the future in the five new provinces in the east. Impoverished through 40 years communistic misrule, this was willingly picked up. Kohl's election victory was secured many months before election day. The unity chancellor was safe.

In the former DDR many now feel that have been fooled. First they believed that everything should be fine only the Wall disappeared. Then everything should be all right as soon as they had a democratically elected government. And the currency union on 1.June should solve all problems as magic. Then German (p.28) unification in October and the first all German elections in December. Every time people were disappointed. It never became better; only worse and worse. Now the time is over for the unrealistic expectations. But in the former DDR the reality is gloomy. There is therefore a real danger of demoralization, anger and resignation.

Helmut Kohl is subject to anger that can almost be compared to that Honecker and his government were subjected to. It can be considered unfair, but disappointment and a feeling of betrayal in love always results in strong emotions. And the unity chancellor Kohl was really met with love and almost blind trust in the earlier DDR.

Demonstrators now demand that Kohl step down. They demand new elections. It has also been suggested that a greater coalition be established; a kind of national coalition government to solve what is considered a national catastrophic situation. This has been categorically rejected by Kohl. "All speculations about a large coalition or new elections are wrong. The coalition has a majority of 60 percent. It will of course fulfil the elector's mandate" it was stated in a highly unusual declaration sent out by Kohl.

All opinion polls now show that voters reject the democratic party (CDU) in droves. Opinion polls also show that 40 percent of the CDU voters in east only voted CDU because they thought it would quickest give money in their own pockets.

It was perhaps necessary for political reasons to implement the German unification in the unbelievably rapid way it was done. Nobody can take away from Kohl the honor for the skilful way he handled the case in very difficult negotiations with the Soviet

Union, USA, Great Britain and France. An initial deep (p.29) scepticism towards German unification was turned into nearly enthusiastic support. But Kohl's fault was that, in order to secure his own reelection, he never honestly explained what now is facing the German people. He never said that this will be expensive both economically and socially , but it is necessary if we want to unite Germany to one country.

4.4 ECONOMICS- the DDR price tag.

Germany in Numbers:

Area in square kilometres: 356,954
Population: 78.6 million
Percent of EC population: 23 %
Percent of EC GNP: 28 %
Estimated growth in 1991: 3.4 %

1990 numbers:	West	East	
GNP	7,200 bill.NOK	930 Mill NOK	
GNP per person:	117,000 NOK	56,400 NOK	
Telephones per household:	93	17	
Students per 1000 people:	237	79	
Work week in hours:	38.5	42.9	(p.30)
Vacation days on average:	30.7	21.9	

There has been a dramatic drop in the German surplus in foreign trade and the numbers are the weakest since 1968. Bonn is pumping still more money into the earlier DDR, but belief in an upswing in the east already this year is fading fast.

Somewhat lower economic growth and a little higher price increase in Germany in 1991 than last year. This is now the official economic outlook from the government in Bonn. The government admits for the first time that it can not predict when the economic upturn will come in the DDR area. Before the New Year, the official projection was that the indices would turn upwards by the summer. The government is now cautiously talking about a possible turnaround after the new year.

In March the Bonn government approved an extra package of 24 million D-Mark (94 billion NOK) as aid to the DDR area for the years 1991 - 1992. The package comes in addition to enormous social transfers from the west. The package is designed to assist provinces and municipalities to repair schools, homes for the aged, hospitals and other official buildings, to assist in improving administration, support shipyards and to improve the quality of buildings and roads at a faster pace than earlier.

This is considered "necessary" in addition to the long term programs. The support measures for close to 2 million "short term workers" waiting for jobs should have expired July 1 this year. It may now be extended to the new year.

Together with the aid package the announced increases in income taxes and gasoline taxes were passed. Together with increased fees to the unemployment insurance fund (that this year will pay out 34 billion D-Mark, or 133 billion NOK, in the east) these increases will remove 50 - 60 billion D-Mark in purchasing power in the 12 months from July 1 this year.

While the tax increases will then be dropped, the higher gasoline taxes will be kept, and from the end of 1992 the German Value Added Tax (GST) will probably be increased by one or two percent from the present 14 %, according to the Finance minister Theo Waigel.

With these measures Bonn will prevent a situation whereby loans for the earlier DDR would become so large that the stability of the D-Mark and the German economy would be jeopardized with negative effects for the European economy. The effects of the new measures have already been seen in a slight drop in German interest rates; a benefit for those intending to invest in the east.

The dramatic financial changes in Germany since the unification last fall have been magnified by the economic downturn in trading partners like USA, Great Britain and Japan. Large parts of the German foreign trade is now directed towards the old DDR so that the traditional large trade surplus is shrinking much faster than authorities had predicted.

In January of this year the trade surplus was only 1.3 billion D-Mark, the lowest since 1968. Imports were in January 24 % greater than in the same months last year, while exports in the same period dropped 2.1 %, according to official statistics.

The trade balance which covers both trade in goods and transfers to other countries, showed a deficit in January of 1.2 billion D-Mark for the first time since August 1985. This tendency was becoming obvious already last year when the German trade balance surplus dropped to 72 billion D-Mark from (p.32) 104 billion in 1989.

The balance of the whole international trading system has been improved thanks to the German unification. This turnabout means that Germany with its "import suction" counteracts the economic downturn tendencies in other countries. The central bank, Bundesbank, is attempting to prevent the economy from overheating through strict monetary policies.

According to official projections by the government, the West German gross national product will this year grow by 2.5 to 3 percent, somewhat less than earlier projected and considerably less than last years growth of 4.6 percent. Of this, 1 -1.5 % is assumed to be a result of the unification. Assumed growth last year was 3.9 %. Price increases in the west are expected to be 3.5 % this year or a little higher than last year. About one percent of the price increase is due to increased taxes and fees. For the areas in the east, the Government still does not dare to come out with detailed projections.

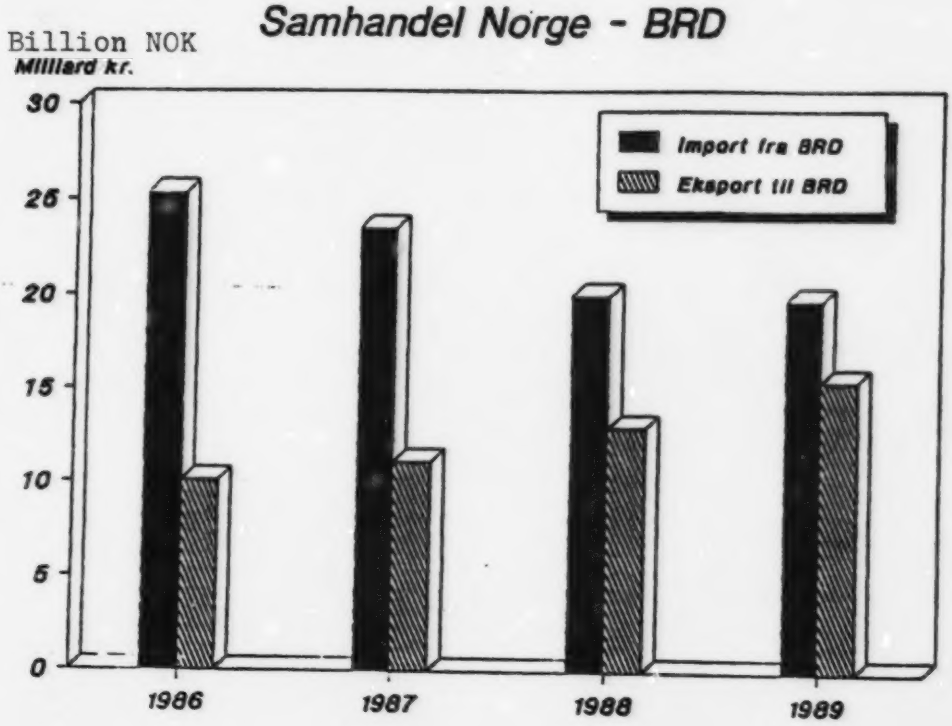
Both the national budget and economic projections have been delayed by several months due to uncertainty about developments in the DDR area, and all numbers are still much more uncertain than earlier. So far the Government is of the opinion that, due to the tax increases implemented, the announced borrowings of 140 billion D-Mark this year will be sufficient. If this is true, the German economic power and stability will be preserved.

"I will resign next year if we are not successful in reducing our subsidies by 10 billion marks", said finance minister Jürgen Möllemann. He does not hide the fact that Germany has pushed some of the difficult economic decisions ahead.

5. BILATERAL TRADE NORWAY - GERMANY

We will here show the Norwegian trade with the earlier BRD (West Germany) and DDR (East Germany) in the years before unification and comment on the position of Norwegian companies in the German market.

BILATERAL TRADE NORWAY - BRD



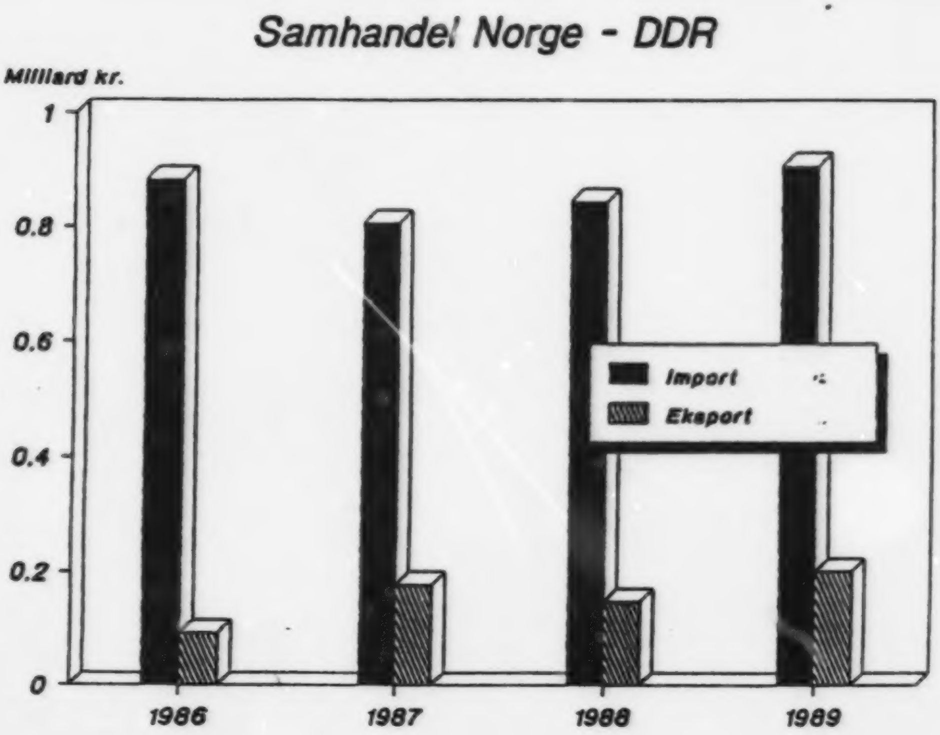
Figur 5.1 Samhandel Norge - BRD (1986 -1989).

Figure 5.1 Bilateral trade Norway - BRD (1986 - 1989)

As we can see from the graph in Fig 5.1, developments have been favorable to Norway. Exports from Norway to the earlier BRD has increased every year while Norwegian imports have decreased. This is associated with Germany's increasing dependence on imports from other nations since it is a country with few natural resources.

BILATERAL TRADE NORWAY - DDR

In Billion NOK.



Figur 5.2 Samhandel Norge - DDR (1986-1989).

Figure 5.2 Bilateral trade Norway - DDR (1986 - 1989)

Norwegian exports to the DDR has also been increasing in recent years, with the exception of 1988. Imports from DDR are relatively stable since this part of Germany has a number of inexpensive agricultural and industrial products of interest to Norway.

The demand for West German and other countries' products is already very high as East Germans now have West German money in their hands. But the demand will in the future be dependent on if the process of rebuilding the united Germany will succeed. Norwegian companies must be prepared to meet a large growth in demand from Germany in the future, but still be cautious in the beginning.

The Norwegian industry has so far exploited the German market very poorly. Our exports of goods to the united Germany, the biggest and the market with the most buying power in Europe, were in 1989 15.8 billion NOK. This is almost 2 billion NOK less than to Sweden , even if the German market is 10 times as large.

The number of establishments is nothing to brag about either; a total of about 100 of which 20 are processing facilities and the rest marketing companies. This is little compared to the Swedish industry which has about 700 establishments on the German market, or Finland who has 270.

Administrative director Kjell Martin Fredriksen in the Norwegian Export Council (Norges Eksportråd) agrees that there is a disparity between the size of the market and the values for both exports and establishments, but he believes it is coming. Germany will have a strong appeal to other European countries, also Norway.

Some companies are , however, very aggressively targeting this market. This applies to Norsk Hydro who has established five large processing facilities in germany in the last five years. The total Hydro sales to Germany is 6.5 billion NOK, and about 2 billion of this comes from their own establishments in the republic.

Exports of goods from Norway to Germany has increased from 10.3 billion NOK in 1984 to 15.5 billion in 1989. It is characterized by five major product groups, namely metals (4.7 billion), chemical products (1.8 Bill.), machinery and transport (1.8 bill), iron and steel (1.3 bill) and cardboard and paper (1.0 bill).

UNEDITED TRANSLATION
[illegible]
TRA[illegible]
[illegible]

In the field of finished products, Norway is as usual doing poorly, but the values are increasing nicely. This applies to both different manufactured products , which have increased from 196 to 552 million NOK over the five-year period, and for seafoods, including salmon, where exports have doubled in five years. (p.36)

Imports from Germany , which were 19.8 million NOK in 1989, are dominated by two items, namely machinery and transport (incl. automobiles) and chemicals. These two posts comprise half of the imports.

6. NORWEGIAN COMPANIES IN THE GERMAN MARKET

Norwegian industry is poorly represented in the strongest market in Europe. It is uncertain if Germany will remain the largest market and the one with the largest purchasing power in Europe in the future. However, Norwegian companies should start to formulate a strategy for this market sooner rather than later. If not, we might found ourselves on the outside the largest market in Europe if the unification process is successful.

One hundred establishments on the German market is not very many, according to the head of the Norwegian Export Council office in Düsseldorf, Egil Hagen. He believes that it is due to cultural resistance. Norwegian industry is afraid of the German market. Since Germany has been the center of interest in the past year or so, Hagen had expected a wave of Norwegian companies establishing themselves, but this has not happened. Due to changes in the tax system in Germany, a number of good small and medium size companies were sold a couple of years ago, but Norwegian industry was not there. Hagen is now afraid that it is too late. This is too bad, for the best way to establish a presence in the market is to purchase an existing company. If it is necessary to start from scratch, it could take 20 years to become established.

Norwegian industry managers on the German market characterize it as the hardest and most demanding market. But they add that there is no market as large and with the growth potential in Europe as the German market. Products must be of top quality and arrive at the right time. In addition, you must work on their terms, and that means at least hard work!

What is perhaps scaring many from tackling the German (p.37) market are the costs. Much money and patience is needed to get in. For brand name products the profiling costs are considerable. A full page ad in "Stern" cost 300,000 NOK. However, it is not necessary to tackle the whole German market at once. Arne B.Guttormsen at Jotun in Hamburg recommends that one province be tackled at a time. Some of these have populations many times that of Norway, for example Nordrhein Westfalen who has 17 million people and is only slightly larger than Hedemark county in Norway.

The company Stabburet has f.ex. tried to enter the market with smoked salmon, but has not been successful. The company contributed 50% of the share capital in Norfik together with the German firm Meiereizentrale in Berlin in 1987/88, but has now pulled out. According to the managing director Bent Fuglesang there were three reasons for giving up the joint venture: Poor return from secondary processing, an unfavorable owner situation and lack of opportunities to develop smoked salmon as a trade mark product. Stabburet has therefore sold their 50% to Meiereizentrale. The company will not say how much the experiment cost them.

In general Norwegian companies are satisfied with their establishments on the German market, but common experiences for most of them are that it takes time, requires hard work and much money to succeed. However, if successful, it usually means the start of long term cooperation. The Export Council now has a larger representation on the German market than any other place.

7. HOW TO TACKLE THE "NEW" MARKET IN THE EAST? (p.38)

The unification which has placed Germany in the spotlight in the past year means new marketing opportunities also for Norwegian companies. How should the new market in the old DDR be attacked? The road to the east goes via the west, is the refrain. Almost no industrial leaders, either German or Norwegian, recommend direct establishment in the earlier communist state. There are just too

In the field of finished products, Norway is as usual doing poorly, but the values are increasing nicely. This applies to both different manufactured products , which have increased from 196 to 552 million NOK over the five-year period, and for seafoods, including salmon, where exports have doubled in five years. (p.36)

Imports from Germany , which were 19.8 million NOK in 1989, are dominated by two items, namely machinery and transport (incl. automobiles) and chemicals. These two posts comprise half of the imports.

6. NORWEGIAN COMPANIES IN THE GERMAN MARKET

Norwegian industry is poorly represented in the strongest market in Europe. It is uncertain if Germany will remain the largest market and the one with the largest purchasing power in Europe in the future. However, Norwegian companies should start to formulate a strategy for this market sooner rather than later. If not, we might found ourselves on the outside the largest market in Europe if the unification process is successful.

One hundred establishments on the German market is not very many, according to the head of the Norwegian Export Council office in Düsseldorf, Egil Hagen. He believes that it is due to cultural resistance. Norwegian industry is afraid of the German market. Since Germany has been the center of interest in the past year or so, Hagen had expected a wave of Norwegian companies establishing themselves, but this has not happened. Due to changes in the tax system in Germany, a number of good small and medium size companies were sold a couple of years ago, but Norwegian industry was not there. Hagen is now afraid that it is too late. This is too bad, for the best way to establish a presence in the market is to purchase an existing company. If it is necessary to start from scratch, it could take 20 years to become established.

Norwegian industry managers on the German market characterize it as the hardest and most demanding market. But they add that there is no market as large and with the growth potential in Europe as the German market. Products must be of top quality and arrive at the right time. In addition, you must work on their terms, and that means at least hard work!

What is perhaps scaring many from tackling the German (p.37) market are the costs. Much money and patience is needed to get in. For brand name products the profiling costs are considerable. A full page ad in "Stern" cost 300,000 NOK. However, it is not necessary to tackle the whole German market at once. Arne B.Guttormsen at Jotun in Hamburg recommends that one province be tackled at a time. Some of these have populations many times that of Norway, for example Nordrhein Westfalen who has 17 million people and is only slightly larger than Hedemark county in Norway.

The company Stabburet has f.ex. tried to enter the market with smoked salmon, but has not been successful. The company contributed 50% of the share capital in Norfik together with the German firm Meiereizentrale in Berlin in 1987/88, but has now pulled out. According to the managing director Bent Fuglesang there were three reasons for giving up the joint venture: Poor return from secondary processing, an unfavorable owner situation and lack of opportunities to develop smoked salmon as a trade mark product. Stabburet has therefore sold their 50% to Meiereizentrale. The company will not say how much the experiment cost them.

In general Norwegian companies are satisfied with their establishments on the German market, but common experiences for most of them are that it takes time, requires hard work and much money to succeed. However, if successful, it usually means the start of long term cooperation. The Export Council now has a larger representation on the German market than any other place.

7. HOW TO TACKLE THE "NEW" MARKET IN THE EAST? (p.38)

The unification which has placed Germany in the spotlight in the past year means new marketing opportunities also for Norwegian companies. How should the new market in the old DDR be attacked? The road to the east goes via the west, is the refrain. Almost no industrial leaders, either German or Norwegian, recommend direct establishment in the earlier communist state. There are just too many uncertainties. The best way, especially for companies that are not established in the German market, is to go through their own connections in the west. "Sit on the back of a West German company", is the usual advice.

So far there are small expectations of expansion on the East German market. On a little longer term there are opportunities, but via West German companies.

It is necessary to take it a little easy; the former DDR is completely worn down. Telecommunications are poor, almost useless, as we all know if attempts have been made to call or send fax messages. Ownership conditions are very confusing, and the East German industrial leaders are like children with respect to business economics. "Take it easy, go through West German companies", is the recommendation of Arne B. Guttormsen in Jotun, who has lived in Germany since the 1960's. Jotun hires sales representatives to cover the eastern provinces, but will chiefly work through established channels in the west.

Representatives from the Norwegian Export Council say the same thing. Do not go directly into the earlier DDR, but build up sales from the west. Even German companies so far have a clear tendency to look at the new provinces more as areas for new sales, rather than areas for establishing new production.

8. HOW TO SELL TO GERMANY? - business culture. (p.39)

The German market is the hardest in the world, according to experienced exporters. If you want to enter this market it is necessary to quickly follow up, be prepared for hard fights and, most important, you must know the German culture.

It is wise to learn the rules of the game. Slow, unpunctual and rough Norwegians can easily fail in this market. Germans require not only quality, but also punctuality, tempo and decisiveness.

Germany is a masculine market where time is largely equal to working hours. Germans are concerned with hard values like growth, decisiveness, formal attitudes, employment status, tempo and authority. Norwegian soft values like solidarity, contact, care and well-being, delegation and vague areas of responsibility, weak systematics, variable tempo and informal social conventions do not rate high with Germans.

What is there about Norwegians that irritates Germans the most? The key words are vagueness, lack of speed and precision.

Let us start with something as "simple" as a meeting. Germans expect you to come to a meeting on time, be well prepared, well dressed and rested.

The authors of this report experienced the importance of being on time during one of our meetings with German fish importers. It was in Stuttgart when we were visiting Stuttgarter Fischgrosshandel. The taxi we took had problems in finding the address, and we were late arriving. We were met with grumpy faces, and before we had exchanged greetings, we heard "You are late". This put a damper on the meeting, but he fortunately lightened up again towards the end of the meeting. What we had expected to happen when we were late,based on what we had read and (p.40) heard about German businessmen, did happen! We did not arrive late at any other meetings after that!

Some Norwegians have an irresistible tendency to combine business with an active nightlife when abroad. Director Trond Wahlström at NORTRA in Hamburg says that he has experienced that interesting business opportunities were lost because of hangovers.

Germans themselves work hard, go to bed early and meet rested and well prepared the next day. A potential business connection with red eyes and bad breath disgusts them. Scandinavians have a tendency to drink so that it can both be seen and noticed. Germans, who themselves can control their drinking, talk about the drinking habits of Norwegians. People that cannot enjoy alcohol in moderation are considered to be uncivilized.

Germans, especially in the north, are cool and formal, but they are polite and expect formal politeness in return. It takes much to get on a first name basis with a German. Norwegians know this, but tend to forget . This is often not well received. Even if we were asked at a meeting in Kiel to use the "Du" form instead of "Sie", it is advisable to use "Sie" first and wait until it is suggested that the "Du" form be used.

It is also important to use name and title a number of times during the conversation, according to Helge Torgersen, head of Protan GmbH in Hamburg. His experience is that Norwegians are liked about average in Germany.

Humor should be used with caution. Not that Germans are humorless, but the humor is often woven into the culture in such a way that it can be difficult for a foreigner to fully understand.

German corporate organizations are hierarchically (p.41) constructed; characterized by respect from below and authority from above. The lines of command are clear. In meetings with Norwegians it is always obvious who is the boss. Nobody is in doubt of who has the responsibility. This is, however, not always just as clear on the Norwegian side where there could perhaps be three representatives with equal authority. This confuses the Germans, and a chief negotiator should therefore be appointed, said the representative for the Norwegian Export Council in Stuttgart.

We were very pleased that we had calling cards made, since most importers we visited wondered who we were, whom we worked for, etc. The calling cards prepared for our interviews and the questionnaires showed that our visits were not only accidental, but well planned, and we noted that this was well received by the German importers.

Just as important as politeness and meeting culture is speed. A telefax is expected to be answered the same day. We experienced this when we sent telefaxes (in German!) to 70 German companies to present ourselves, and to ask if we could visit them. We sent as many as 70 as we did not believe that everyone would bother to reply. However, in this case we certainly experienced the difference between German thoroughness and Norwegian vagueness or sloppiness. The same week that we had sent the fax messages the replies started to come in, and all were polite and very friendly. Within a few days we had replies from all of them. This meant that we had to pick out the most interesting visits for our purposes.

Also, Germans are not very enthusiastic about superficial and general statements: "An especially good product, world's best etc", does not mean anything to a German. He wants to have facts, and he wants them quickly. It is wise to assume a sober attitude towards your own product and let the product and the technical information speak for itself. Germans are not very receptive to sales bragging. They want solid documentation and demand clear and exact (p.42) answers to their questions.

One thing that irritate Germans most about Norwegians is vagueness and lack of punctual deliveries. German will not tolerate vacillation when an agreement has been signed. This applies to time limits, quantities and correct quality.

It is also important to know the German language. During our visits we were repeatedly complimented on being able to speak the language and they were even more impressed when we could discuss fishery topics with them in German. Most importers we visited pointed out that Norwegian businessmen usually are better to deal with respect to language than for example Frenchmen, since Norwegians have a greater feel for the German language and a will to attempt to use it.

However, all Germans are not alike. In Southern Germany, especially in Bavaria, it was said that we would meet a more friendly and convivial German. We did not notice any large differences between importers in north and south. We also met many congenial importers in Northern Germany. Southern German joviality does not mean that demands for punctuality, order, honesty and tempo are less than in the north. "Ordnung muss sein" applies all over the country.

We acquired many good contacts in the German seafood industry and we were often told we were heartily welcome to make contact when we ourselves would start to work in the Norwegian fishing industry. Much of this we believe was due to our good knowledge of the German language and that we tried to follow all good advice on how to behave in the German business climate.

9. OPPORTUNITIES AND PROBLEMS ON THE GERMAN MARKET

Opportunities:

- Germany is Europe's largest market; 62 mill. people in west and 16 mill. in the east.
- Germany has the largest number of households in Europe.
- Germany is dependent on increased imports as a result of unification. The eastern part yields a strong demand impulse.
- High wage levels in west where the workers are among the best paid in the world.

Problems:

- The economic rebuilding of the eastern part of the country can lead to economic decline and lower purchasing power among consumers in Germany.
- The EC inner market in 1992; Germany is a member of EC and Norwegian exporter have higher costs relative to the EC countries. It will be a barrier if we can not compete price wise. We can not longer survive on our reputation of having good quality, since there will be many other nations that can deliver products of the same quality, but at a lower price as a result of membership in EC.

10. THE GERMAN SEAFOOD INDUSTRY

The statistical data in this chapter is taken from FIMA (Fischwirtschaftliche Marketing Institut) in Bremerhaven.

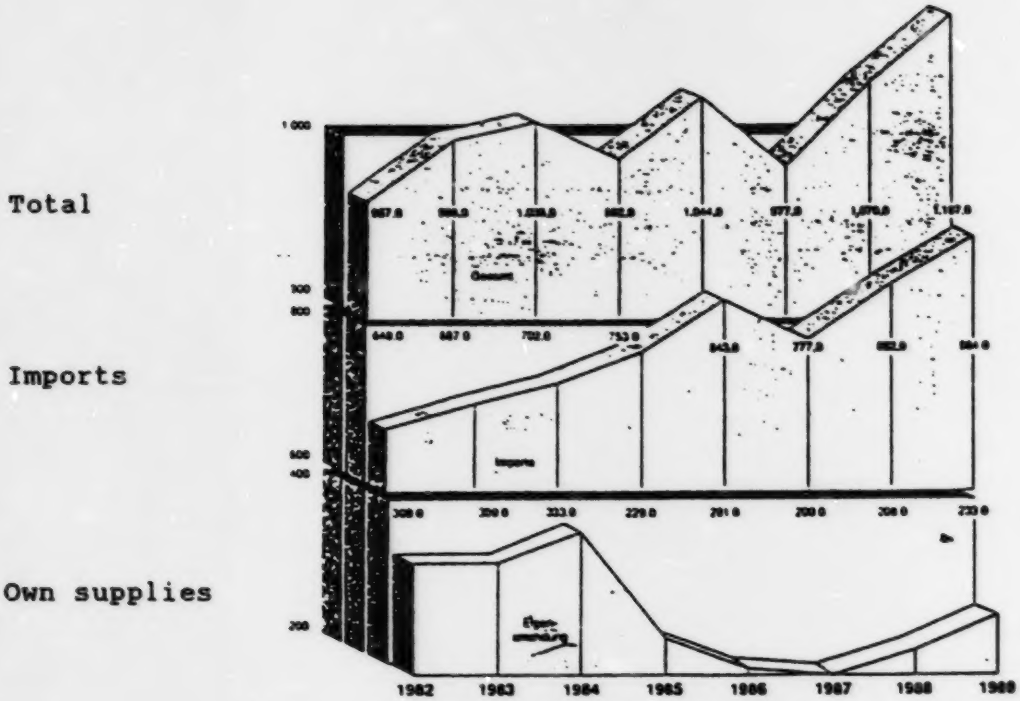
10.1 INCREASED SALES AND EMPLOYMENT

A total of 30,700 were employed in the German seafood industry in 1990 with total sales of 8.5 billion DM. All links in the industry have shown increased efficiency by developing better control methods and an improved marketing system.

The German seafood industry could, with it's wide product selection, offer consumers a large selection which has been utilized with increasing intensity. The obvious increase in quantities sold and stable prices led to a corresponding growth in all areas of the industry.

10.2 SUPPLIES

The total offer of fish and seafood has reached 1.2 mill.T. Germany's own production is about one fifth of this, the highest tonnage so far. The goal of the fishing industry is that the German deep sea fishery shall retain their share of basic income on the domestic market. The supply of seafood on the German market is still heavily dependent on imports and for that reason, free world trade is of great importance for the German seafood market.



Figur 10.1 Utviklingen i totalforsyningen av fisk og fiskevarer i BRD. (i 1000 t)

Figure 10.1 Developments in the total supply of fish and fish products in FRG (West Germany) (in 1000 T)

The top graph shows the total supply of fish and fish (p.46) products to FRG, while the middle shows imports and the last graph own supplies.

10.3 NUMBER OF COMPANIES, SHIPS AND EMPLOYMENT IN THE GERMAN FISHING INDUSTRY

Companies	1987	1988	1989
Processing firms:	105	105	110
Wholesalers:	119	122	130
Fish shops:	7,530	7,540	7,560
Delicatessens(Gourmet shops):	408	420	450
VESSELS			
Trawlers:	12	13	16
Inshore vessels:	1,040	1,030	1,030
EMPLOYMENT			
Deep sea fishing:	580	620	650
Inshore and inland fisheries:	2,700	2,700	2,600
Fish markets and imports:	750	800	850
Processing industry:	10,050	10,050	10,600
Wholesalers:	1,450	1,490	1,600
Fish shops:	11,100	11,200	11,300
Delicatessens (Gourmet shops)	2,900	2,950	3,100(p.47)

Due to growth in production, trade and sales, the individual branches within the German seafood industry, with the exception of the Coastal and Purse Seine fleets, hired more employees. After an additional 900 employees were added,the total number employed reached 30,700, considerably higher than in earlier years.

10.4 PRICE INDICES IN THE RETAIL TRADE

Year	Fish	Foods	Meats	Bread	Fruit & Veg.
1980	100	100	100	100	100
1987	125.3	113.5	110.9	118.9	115.9
1988	128.3	113.5	110.2	120.0	113.9
1989	131.8	116.7	112.9	121.7	114.5

Fish has become more expensive for consumers due to increased costs in processing, trade and expansion of the product spectrum. Price increases for 1990 followed the normal trend for food products.

10.5 THE FISHING FLEET

Due to developments in international sea laws, the German fleet has had to be reduced since the early 1970's thereby reducing catching capacity. The trawler fleet was especially affected. To adjust to the new conditions, Germany has reduced their fleet so much that only 25% of the catch in 1979 was caught in 1989. The fleet now consists of 16 vessels which contribute only a small part of the raw material and semi-processed seafoods used by the German processing industry. The reason for the drop in (p.48) inshore landings is primarily due to reduced stocks of shellfish.

10.6 FISHING AREAS

The most important fishing areas for the german trawler fleet are Norway, west of the British Isles, Greenland, Faroes Islands and the sea off Bear Island. Off Canada fishing is only permitted outside the 200 mile limit.

Purse seiners operate chiefly in the North- and Baltic Seas up to the middle part of Norway and stay at sea up to 3 weeks. The inshore fleet only makes day trips.

10.7 LANDINGS

Landings by the German fleet have increased considerably in 1989 due especially to the increased catching capacity for schooling fish like herring and mackerel, and to increased cod landings. Landings of pollock, redfish and especially shellfish, have declined.

Total landings of the most important fish species:
Domestic landings in tonnes.

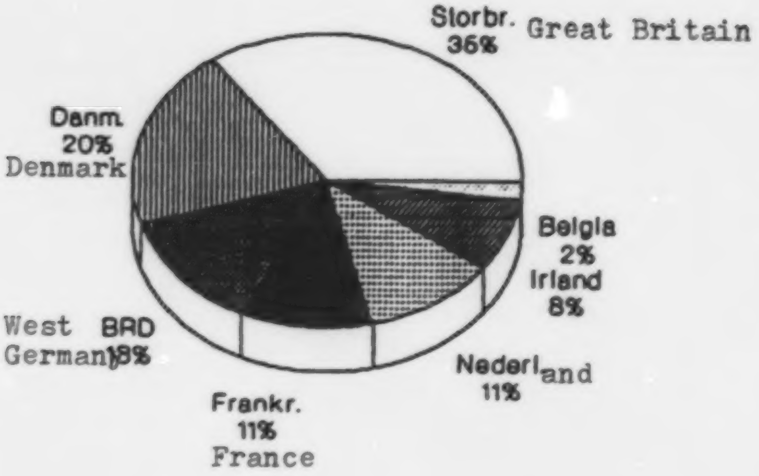
	1987	1988	1989
Herring	12,100	8,200	36,600
Cod	36,900	37,800	40,400
Pollock	27,000	23,100	14,700
Plaice	600	700	800
Redfish	13,500	10,700	6,400
Mackerel	12,500	9,800	21,500
Other	11,500	7,100	13,000
Crabs	15,900	13,700	13,100
Shellfish	30,000	30,900	19,500
TOTAL:	160,000	142,000	166,000

Cod is the species that the German fleet lands most of,(p.49) followed by herring and mackerel. These fish species comprise more than half the total landings.

10.8 QUOTA DISTRIBUTION IN THE EC - COUNTRIES

Distribution of EC catch quotas to individual countries is the responsibility of the Council of Ministers. Since the resolution on a common fishing policy was approved in December 1983, the relative distribution between member countries has not changed.

The quotas are parts of Total Allowable Catches (TAC) established on the basis of biological data of the various fish stocks. The goal is protection and as much rebuilding of stocks as possible, but the interest of fishermen is also considered.



Figur 10.2 Kvotefordeling mellom EF-landene av de viktigste fiskeslagene. (Uten Spania, Portugal og Middelhavslandene). De viktigste fiskeslagene: Torsk, Hyse, Sei, Hvitting, Rødspette, Uer, Makrell og Sild.

Fgure 10.2 Quota distribution of the most important species between EC countries. (Without Spain, Portugal and the Mediterranean countries. The most important species: Cod,, Haddock, Pollock, Whiting, Plaice, Redfish, Mackerel and Herring.

Over 50% of the EC catch goes in the nets of Danish (p.50) and British fishermen who therefore take most fish in EC waters.

10.9 FOREIGN TRADE

Imports of fish and fish products are of great importance for the German market. The reason for Germany's increasing dependence on imports is the decrease in own landings, chiefly due to declaration of 200 mile zones in other countries, and the general decline in total fish quotas. Total import share is over 80 percent. It has, however, dropped slightly since last year, but still retains it dominating position. Imports in 1989 were 964,000 tonnes (catch weight) with a value of 2,325 million DM. The product value of imported saltwater fish has increased relatively more than the import value of specific fish species.

Import shares:

	1987	1988	1989
Share of own supply	20%	19%	19%
Import share	80%	81%	81%
Imports(catch weight in T)	777,000	862,000	964,000
Value (mill. DM)	1,966	2,125	2,325
Imports of saltwater fish in Mill DM.(whole fish & fillets, fresh and frozen)	806	832	933
Import value semi-processed & finished products in mill DM. (preserves, smoked products etc.)	1,160	1,293	1,329

EC countries has an almost 50% share of the total import value and are therefore the most important suppliers. Norway is also high on the list with 10% (see below).

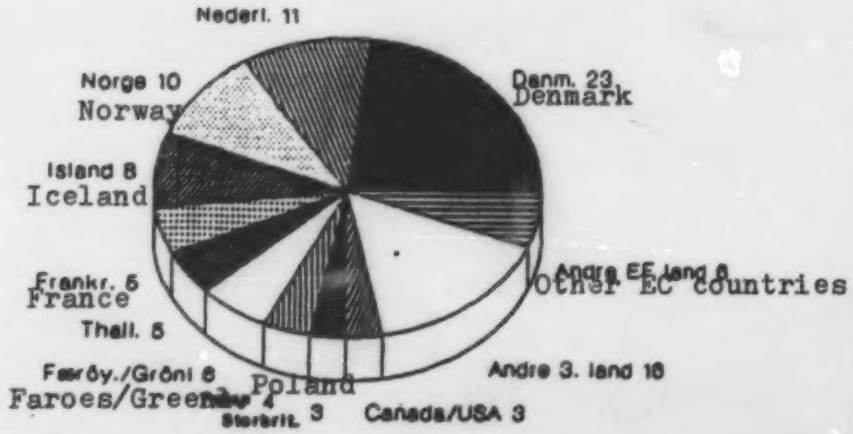


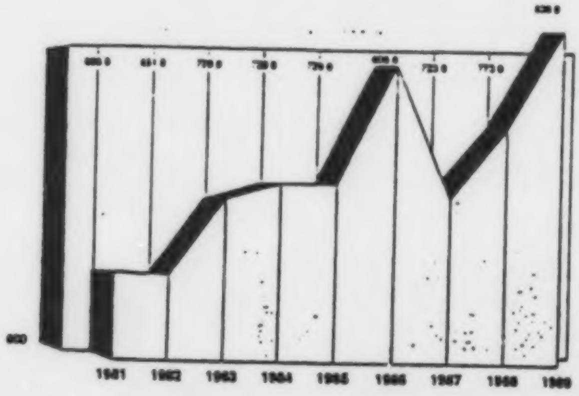
Figure 10.3 Countries supplying fish and fish products to the German market in percent of the total value of 2,325 mill DM.

11. CONSUMPTION OF FISH IN GERMANY, TRENDS AND DEVELOPMENTS

11.1 DEVELOPMENTS IN CONSUMPTION OF FISH AND FISH PRODUCTS

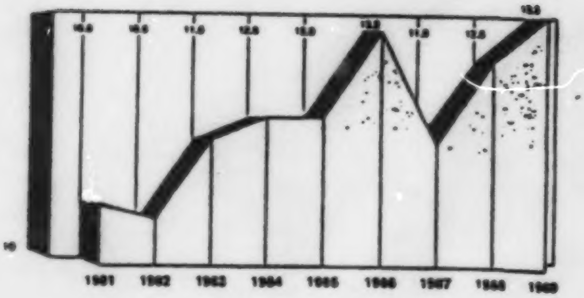
The consumption of fish and shellfish in the earlier FRG has, with the exception of the year 1987, been increasing. Relative to the increase in consumption of some other food products (meat and poultry) the increase in seafood consumption has been relatively small. A relative average increase in consumption of a few grams is still quickly noticeable in a country of 61 mill people. With unification, the market is considerably larger again. We will here show how the consumption of seafood has developed in the past decade.

(p.52)



Figur 11.1 Forbruk av fisk og fiskevarer i BRD i 1000 tonn.

Figure 11.1 Consumption of seafood in FRG in 1000 t.



Figur 11.2 Forbruk av fisk og fiskevarer pr. person (i kg fangstmengde) i BRD.

Figure 11.2 Consumption of seafood per person (in kg catch weight) in FRG.

From the graphs we can see that there has been a small (p.53) decline in consumption between 1981 and 1982. Consumption then increased by 8.5 % to 11.5 kg per person between 1982 and 1983. An additional half kilo was added the following year, but there was a stagnation of 12 kg per person between 1984 and 1985. In 1985-1986 there was a sharp increase to 13.2 kg/person; i.e. 10% more than in 1985.

In 1987 the German seafood industry experienced the "nematode crisis". A program on TV discussed the content of nematodes in fish flesh. Enlarged pictures of the parasites were shown to a frightened TV audience. This led to a sharp decline in the consumption of fish over a short period of time and many companies ended in bankruptcy. A total of 83,000 tonnes of fish and shellfish were sold in 1987 compared with the top year 1986.

The TV program and follow-up by other media had a number of different departments working frantically with counter measures. For example, stricter inspection of fish was implemented, especially as a round product to the consumer.

After the crisis that hit most of the West German seafood industry, it came as encouraging news that the total consumption of fish increased in 1988. With 12.5 kg/person the level of 1986 had still not been reached, but it was clear that the situation was improving and that the information to consumers had shown results.

The largest problem associated with the crisis in 1987 was not the loss of the large consumers of fish since these continued to eat fish also in this period. However, the consumers that stayed away were those that consumed fish only once or twice a month or less, and these are the most difficult to get back.

In 1989 the consumption of seafood reached 836,000 tonnes. This is the highest consumption in many years. Also, the consumption per person of 13.5 kg was a new record, and FRG has thereby exceeded the world average of 12 kg/person. It is now assumed that the fallout from the 1987 crisis is over.

In Norway the consumption per person is ca. 46 kg and in Portugal, Spain and Finland ca. 35 kg. The largest consumers in the world are Iceland with 88 kg and Japan with 74 kg per person.

The highest fish consumption is therefore found in countries with long coasts and in countries where distances are short from fishermen to consumers. In Germany it is also traditional that fish consumption is higher along the coast. In Schleswig - Holstein, Hamburg and the northern part of Niedersachsen the consumption is over 30 kg/person per year. In Nordrhein - Westfalen it is 11 kg/person, while in the southern part, like Bavaria and Baden - Württemberg, it is only 4-5 kg/person.

In recent years there has been an increasing consumption of fish in the south, but it takes time before they can approach the consumption in the north. Eating habits change, but they change slowly.

It should be noted that it is in the Middle - and South Germany the highest population density is found, and it is around the large cities Hamburg, Düsseldorf, Frankfurt, Stuttgart, Munich and Berlin the largest purchasing power is located. These areas have the highest average wage levels in Europe, and four of these six cities are in the Middle- or South Germany. It is therefore undoubtedly a large market that is "untouched" in the southern part of Germany. This should be a challenge also for Norwegian exporters. It is a market that could give good returns, but it would be both time consuming and expensive. The market must be worked on and become used to eating more fish. Today's (p.55) modern processing -, safety -, transport - and marketing methods are important advantages in the work to increase the consumption of fish.

Leading German business people and analysts in the seafood industry indicate that it is expected that seafood consumption will increase by about 5% per year towards year 2000; i.e. consumption per person will be about 20 kg per year. Increased quantities of fish for the German market will also be required as a result of increased demand for consumer goods after unification of the two states. At the present time it would primarily be fish species like herring, mackerel, pollock, cod and a few others that would be of interest for the eastern part of the country. Increased consumption of "feinkost" (delicatessen) products also in the east will show up if the unification of the two countries is successful economically.

One thing is certain in any case, that if the consumption continues to increase as predicted by analysts, and German self sufficiency develops as it does at the present time, the German market will be even more important than it is today.

Since we now have established that the demand for seafood will increase, we would like to mention which fish and shellfish species and products that will be of most interest on the German market in the future.

UNEDITED TRANSLATION
For information only
TRADUCTION NON REVISEE
Information seulement

11.2 FISH SPECIES OF INTEREST NOW AND IN THE FUTURE

Market shares of the most important fish species in FRG in 1990

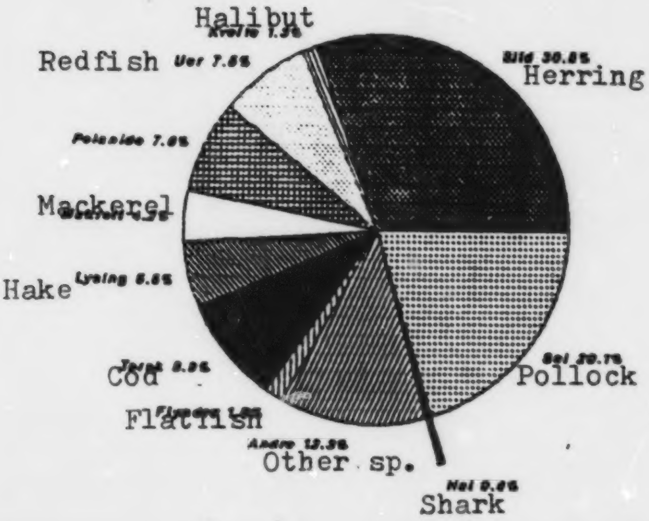


Figure 11.3 The market shares of the most important fish species in FRG in 1990

The herring has undoubtedly the greatest position in the German market and it's market share has even increased. It will likely remain unchallenged also in coming years. Pollock is in a "secure" second place.

It is interesting for Norway that all the important fish species consumed in Germany are also the most important for the Norwegian fishing industry with the exception of tunas.

Fresh water fishes have not been specified in the figure above. Salmon and trout come under this designation in Germany and are for that reason not included. In 1988 about 15,000 t (p.57) salmon was consumed in West Germany which corresponds to 1.94% of the total. Consumption of trout was somewhat higher. It appears as if German interest in finer fish species is increasing. Fish species that most consumers did not know existed can now be found in stores and on menus in restaurants. Examples are species like Dorade (Dolphin fish), St.Peter (John Dory), "Roughet Barbet" etc. It is said that Germans learn about these fish when on vacation.

The demand for these foreign species is highest in August - September, just after the vacation period. This applies not only for fish, but also shellfish and molluscs. Giant shrimp (Gambas) has become a very popular article.

Salmon has had a fantastic development in recent years, also in West Germany. Norway has a market share of about 80% of this species. However, importers we visited said" Watch out, other countries are coming and can supply products of equal quality to those supplied by Norwegian exporters and at a lower price!" And the policy of freezing surplus fish practiced in Norway was very unpopular among German importers.

But even if prices to German importers have dropped sharply, prices charged consumers have changed little. This is one reason many consumers still consider salmon a luxury fish. The German importers we visited believed that salmon will keep its position in the market, but they added that Norwegian exporters soon must look around for other fish species and product variants in order to keep their position in the hard German market.

An increased consumption of fish in the future will most likely be for the traditional species like herring, pollock and redfish, but also for species like salmon, tuna and other "Feinkost Fische" (delicatessen, gourmet).

11.3 PRODUCT TYPES OF INTEREST NOW AND IN THE FUTURE

FISH CONSUMPTION PER PERSON

By product group

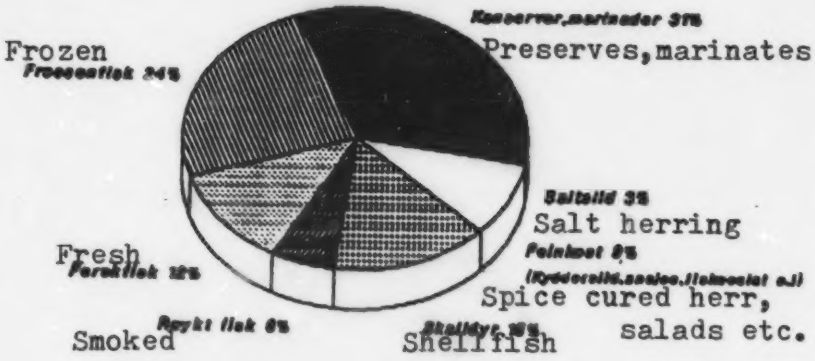


Figure 11.4 Fish consumption per person by product groups

Selection and offers are large to the German consumers. Almost 2/3 of the consumption consists of canned products, crabs and shellfish, delicatessen and smoked products.

Frozen fish is a strong number two with a share of 24% and it has increased as much as preserved products. The increase in the use of frozen fish is a development common to most European countries. It is especially the change in consumer work habits that affects the eating habits.

It is quite usual today that both members of a (p.59) household work outside the home. When arriving home, it is very simple to take the dinner out of the freezer and prepare it in a short time. This change in consumption habits is also visible in the increased sales of microwave ovens and prepared and semi-prepared dishes.

In 1989 about 20% of all households in West Germany had purchased a microwave oven , and it is expected that in a few years 60% will own one. More and more fish based prepared dishes are available in supermarkets and product development is a high priority in most food companies.

German consumers have confidence in frozen foods and these are therefore on the increase, even if exotic fresh fish products are also growing. Much of the reason for the increase in fresh fish is improved transport to the southern parts of Germany, and consumers there can therefore receive fish not more than two days old.

Under the designation "Feinkost" are products such as appetite herring, anchovies, spice cured herring and various forms of "Matjes" herring fillets. These products, together with smoked fish, have been showing signs of sales increases in recent years, and most also means that this increase will continue in the future.

Most of these products are produced in Germany, Denmark or Holland. Norwegian exporters will therefore meet high customs duties and market resistance when they try to enter. It should still be good chances for those that know how to pick the right segments and work on these in the "right" way. Price and quality in addition to a steady supply of the product are important sales arguments.

11.4 IS THERE A TREND TOWARDS SMOKED FISH PRODUCTS?

Smoked fish has a share of 6% on the German market and the share has increased in recent years. In 1989 the yearly production was 297,800 t, i.e. an increase of 13.3% since the year before.

Germans are very health conscious and all foods should be healthy and contain many nutrients. But is it healthy with smoked products? Yes, absolutely, says the head of one of the leading smoke houses in England, Channel Foods.

More and more people have gone over to eat smoked pelagic fish as a healthy alternative to meat. Smoked pelagic fish is very healthy with it's oily flesh, which is good for the cholesterol level in the blood. Sales statistics show an increased demand for smoked mackerel, salmon, trout and other species according to the head of Channel Foods. He believes smoked fish will be one of the most important protein sources in the 1990's.

More and more away from meat and over to fish can seem to be reality all over the world. People are to an increasing degree concerned with health and environment , and this will again show up in consumption patterns.

Medical science now seems to have proof that a diet with a high content of Omega-6 fatty acids relative to Omega-3 fatty acids leads to overproduction of several hormone-like messenger substances. These are all substances that in abnormal concentrations result in irregularities or diseases. This applies primarily to heart and circulatory system diseases, but can probably be involved in other diseases (joint inflammations, psoriasis, asthmatic bronchitis).

Researchers know of four different methods for blocking or inhibiting such production. In practice there is, besides (p.61) reducing the total consumption of fats, only one method that is of interest, namely to increase the amount of Omega-3 fatty acids in the diet.

The Omega-3 fatty acids are produced by phytoplankton and blue green algae living in water. These important fatty acids are transported through the food chain. We find the greatest resources of these fatty acids in fatty fish and especially fatty fish from northern areas.

Since medical science now recommends increased consumption of fish rich in Omega-3 fatty acids, we will probably see an increased market for herring, sprats and mackerel, but perhaps especially increased consumption of farmed salmon. We can namely produce the quantities demanded by the market , and we have opportunities through the feed to increase the Omega-3 content.

Many of these fatty fish species are the ones most popular for smoking, and the demand for smoked fish products will therefore probably continue to increase, according to the theories of researchers.

With basis in the above, it could seem to indicate that Norway is near an "Oil bonanza" of permanent character. But this would only be possible with increased product development in the Norwegian seafood industry and there is a question if we can compete with countries in the EC.

12. DOGFISH ON THE GERMAN MARKET (p.62)

12.1 GERMAN IMPORTS AND DOMESTIC SUPPLIES OF DOGFISH

West Germany is an especially important market for Norway since this country imports fish species that are "surplus" to our needs. This applies chiefly to herring, pollock, redfish, mackerel and salmon, and in recent years also some cod in the form of frozen fillet blocks.

The German imports of Norwegian dogfish are important in that we do not consume it ourselves in this country, and it is also an important extra income in times when there are smaller quantities of traditional fish species.

Germans import large quantities of fresh and frozen dogfish which they smoke and sell as "Seeaal" (backs) or the delicatessen "Schillerlocken" (belly flaps).

The prices we saw for Schillerlocken varied from 3.28 DM/100 grams to 5.95 DM/100g. The quality reflected on the price. It was cheaper in the supermarkets than in the fancy fish shops.

The prices for "geräucherten Seeaal", i.e. the smoked dogfish backs were around 1.70 DM/100 g.

The numbers below are taken from Statistisches Bundesamt in Wiesbaden and are from 1989.

Fresh dogfish

	Quantity (100 kg)	Value(1000 DM)
Total imports:	524	277
Imports from EC:	231	132
Imports from Norway:	290	144
Exports:	3	3

We can see that Norway is an important supplier of (p.63) fresh dogfish on the German market. We deliver larger quantities than the EC-countries, but at a lower price. The low price relative to the price the EC countries is paid is due to large quality differences, according to the German importers. By being better able to take care of bycatches through increased training and knowledge about how to handle the raw material, a higher price should be possible.

The low exports of dogfish from Germany should also be noted indicating that almost all products are used for domestic consumption. Dogfish is a popular fish in Germany, but best known as the delicatessen "Schillerlocken".

Frozen dogfish:

	Quantity (100 kg)	Value(1000 DM)
Total imports:	Unknown	Unknown
Imports from EC:	4,189	2,117
Imports from Great Britain:	4,145	2,079
Imports from USA:	1,916	886
Imports from Canada:	1,080	463
Exports:	15	8

The values for the total German imports of frozen dogfish are very uncertain and are therefore not included, but the most important suppliers are listed.

We can see that imports of frozen dogfish are much higher than fresh imports. This is no doubt due to the poor keeping properties of fresh dogfish. A couple of hours without cooling or freezing is enough for the fish to smell like ammonia and thereby be ruined.

Norway is not included in German statistics over (p.64) the most important suppliers of frozen dogfish, since we in 1989 only exported 9 t frozen dogfish to Germany. However, opportunities for increased exports of frozen dogfish to the German market are still possible. The German importers we spoke to were very interested in more raw material, especially frozen. Frozen dogfish can often be better for smoking than fresh since the smoke is better absorbed on a fish that has been frozen.

Domestic catch of dogfish.

1988:	14,775 kg
1989:	22,618 kg
1990:	16,831 kg

It can be seen that the German catch of dogfish is very small and again points to the increasing dependence on imports. The demand is high for raw material to be used for smoking. When there is a shortage of raw material, it should be possible to supply smoked products as long as price and quality meet buyers demands. However, remember that we are not alone in supplying raw material! Our largest competitors are Great Britain, USA and Canada.

12.2 NORWEGIAN EXPORTS OF DOGFISH.

Norwegian total exports to the former FRG has increased year by year. In 1990 total exports of fresh and frozen fish were over 28,500 t. Frozen fish comprises the highest quantity and is increasing faster than fresh, since consumers have greater confidence in frozen products. While total exports of frozen and fresh fish to FRG have increased considerably through the years, exports of dogfish have declined drastically (see below).

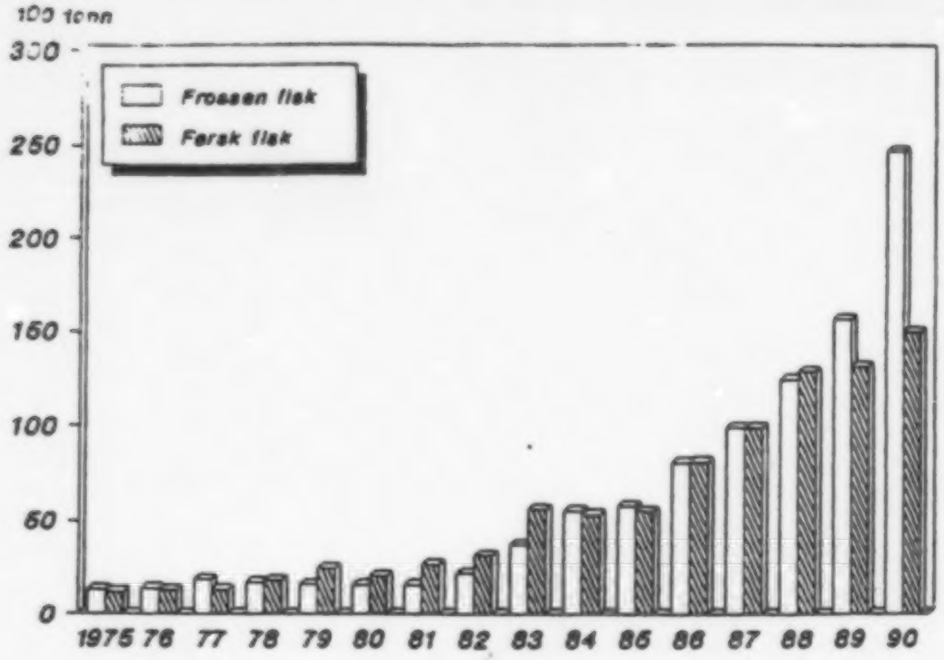


Figure 12.1 Total Norwegian exports of fresh and frozen fish to FRG 1975 - 1990.

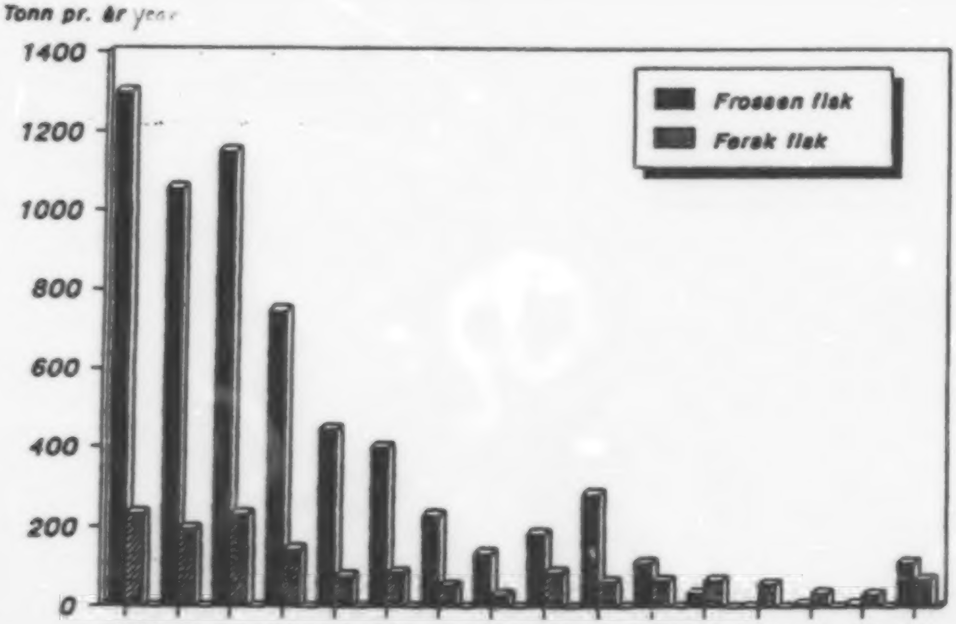
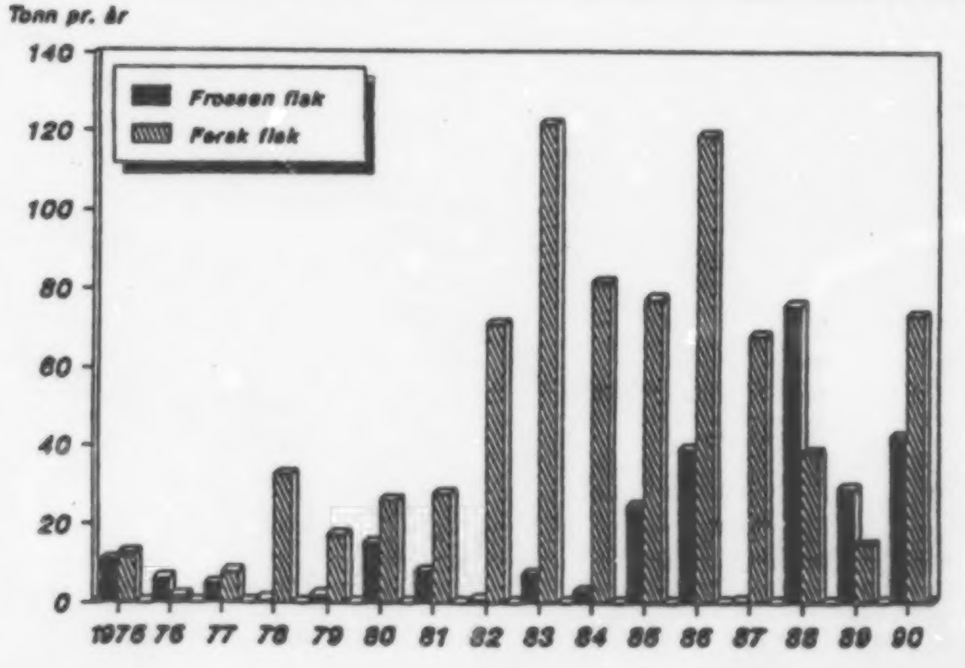


Figure 12.2 Norwegian exports of dogfish to FRG 1975 - 1990.

The drop in exports of dogfish is not associated with (p.66) declining demand from the German market. The drop applies to all countries we export dogfish to. The reason is poor prices to Norwegian fishermen relative to the work and extra cost involved in the proper handling of dogfish as a bycatch. Landings have therefore declined. Another contributing factor could be the migration pattern of dogfish.

Considering that dogfish are mostly caught as a bycatch in Norway, exports of this species are tied to the occurrence of conventional species. We have chosen to look at exports of cod to FRG through the years to find out if they have any connection with export volumes of dogfish.

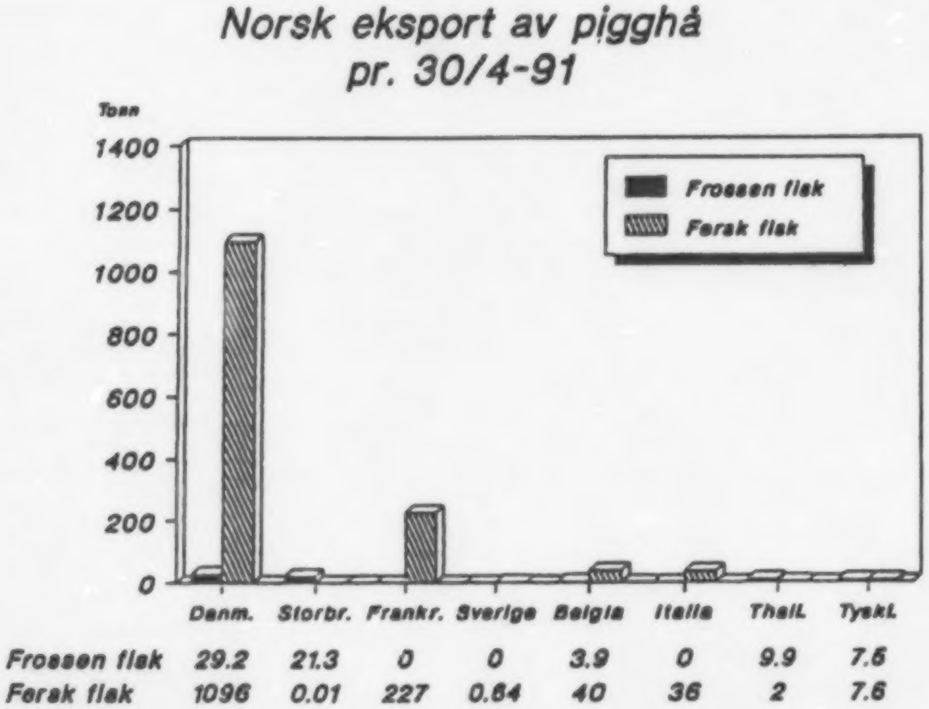


Figur 12.3 Norsk eksport av fersk og frossen torsk til BRD 1975-1990.

Figure 12.3 Norwegian exports of fresh and frozen cod to FRG

If we look back at the graph over Norwegian exports of dogfish to FRG and compare it with the graph above, it can be seen that in times with low cod stocks and exports, larger quantities of dogfish are being exported. This shows how important bycatches have been in times when landings of conventional species are low.

Exports of dogfish to the German market so far this year do not indicate that they will exceed last years. In 1990 Norway exported 191,730 kg to FRG and as of 30 April 1991 the total was 7,458 kg frozen and 7,579 fresh dogfish.



Figur 12.4 Norsk eksport av pigghå pr. 30/04-91.

Figure 12.4 Norwegian exports of dogfish as of 30 April 1991.

The figure above shows that Denmark is the largest importer of Norwegian dogfish. We send the raw material there and let the Danes smoke it for re-export to the German market. The Danes earn most of the money! This is the way it has been for years (see the two graphs below). When are the Norwegian exporters going to wake up and make an effort to earn more money on secondary processing? The Norwegian seafood industry desperately needs the money, and the opportunities are there if we only knew how to take advantage of them!

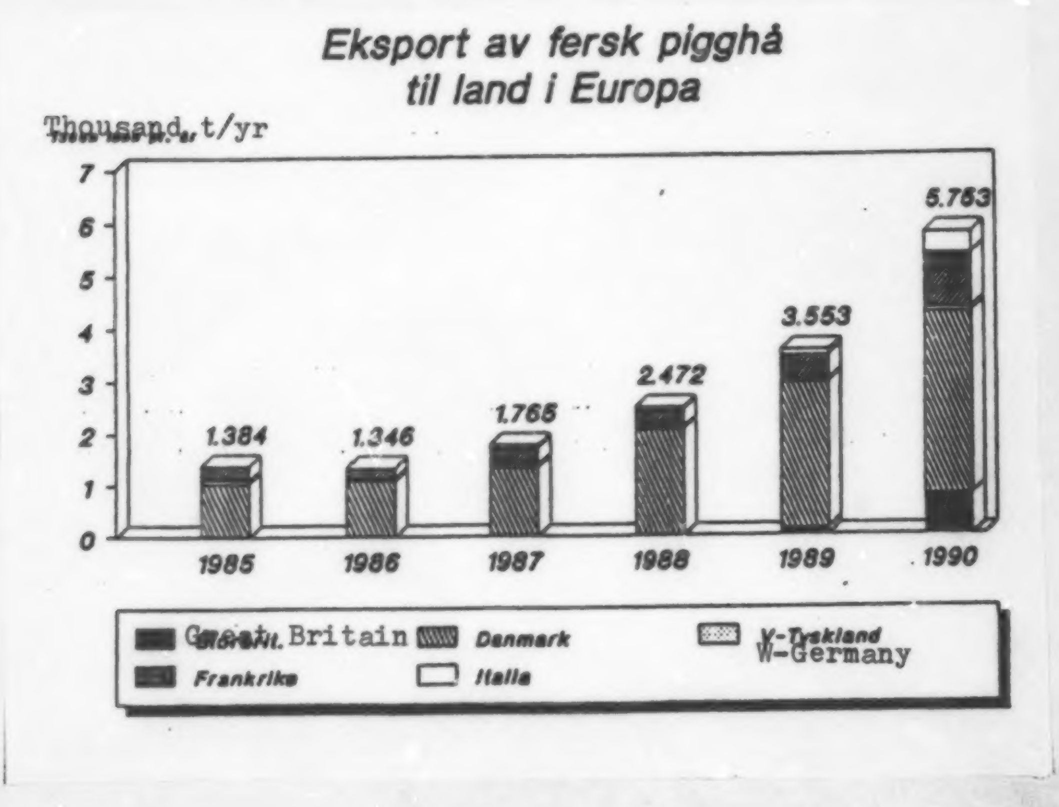


Figure 12.5 Norwegian exports of fresh dogfish to countries in Europe.

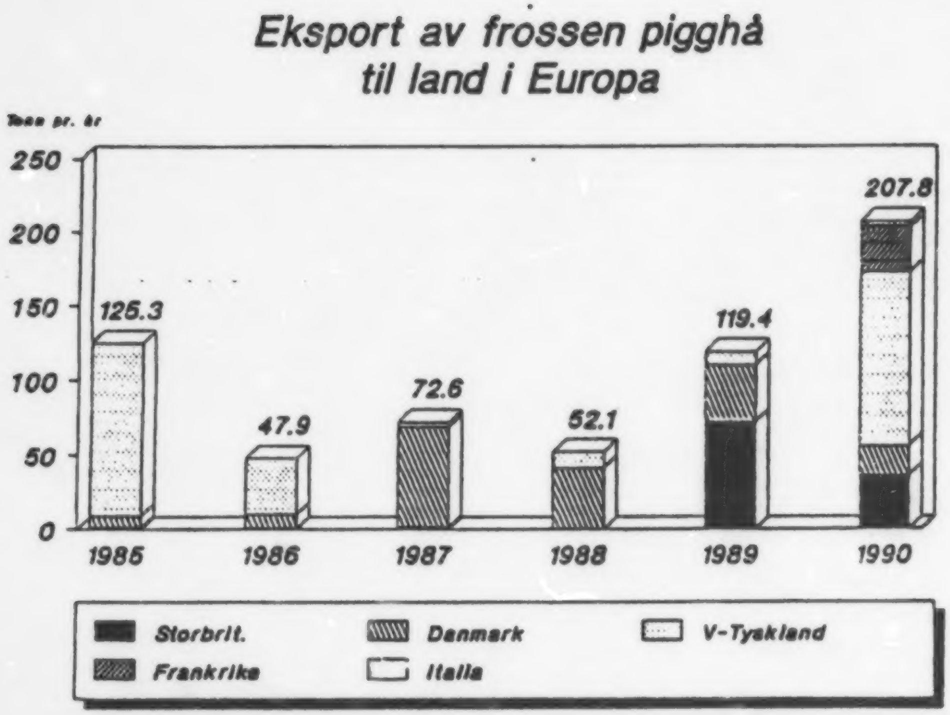


Figure 12.6 Norwegian exports of frozen dogfish to countries in Europe, 1985 - 1990

13. THE EEZ (EUROPEAN ECONOMIC ZONE) TREATY -free access to the EC market.

The implementation of the European Common Market shall according to the plan take place 1 January 1993. The 12 EC countries decided already in the 1980's to expand their inner market. The reason was economic recession and high unemployment in the EC countries.

A large European inner market should contribute to the utilization of the technological and industrial resources in the EC countries to meet the competition from North America and Asia. The objective of the inner market was to break down obstacles between the countries so that goods, services, people and capital could move freely between countries.

It is obvious that the fall of the borders in EC will affect Norwegian companies. A total of 65% of our exports goes to the EC and half of all Norwegian exporting companies are engaged on the EC market.

To meet the challenge that the implementation of the EC inner market will entail, the EFTA countries decided in 1989 that the free trade agreements that had formed the basis for cooperation with the EC since 1973 were no longer sufficient. Negotiations were therefore started on a cooperation agreement between EFTA and EC; the EEZ agreement.

For the EFTA countries the EEZ negotiations have two main objectives: first to secure market access for their industries based on equal competitive conditions. Second,to participate in closer European cooperation in EEZ within environment, research, education and social questions.

The most intense discussions in the negotiations on a EEZ agreement have been on fishery and agriculture matters. During the negotiations between the seven EFTA countries and the EC (p.71) in Luxembourg this past week (19 June 1991), they have finally reached an agreement that all parties seem to be satisfied with.

There is a certain increase in quotas in the agreement, but this is tied to the reciprocity established in the ordinary fishing agreement between Norway and EC. Increased quotas for the EC will in be exchanged for increased Norwegian quotas in the North Sea. It is also in the agreement that Spain will get the quota that EC countries today has in the Spitzbergen zone. This is an internal exchange within EC that should not involve Norway to any large extent. The only danger would be that our experiences with the Spanish trawlers off Spitzbergen has been much worse than with trawlers from other countries. A more effective monitoring system should be established.

In return for a solution that in principle has not cost Norway a single fish more than what we can get back in the North Sea, we have received duty free access for processed Norwegian fish products. This will open new opportunities for smoked dogfish on the German market in that we can also compete in price and not only in quality alone. There is today a 14% duty on smoked dogfish to the German market, and it should be evident that we will be better equipped to meet the hard competition on the EC market.

Not many have any idea about the importance duty free access to the EC-market cold have for employment along the coast. If we are to take advantage of the opportunities opening up, it would require the Norwegian seafood industry to be wide awake and prepare now for the expanded markets that the inner EC will create. (p.72) It will be necessary to do something about the first hand marketing of fish in Norway. Prices fluctuate too much with the current auction system and this,together with fluctuations in raw material supplies, makes the operation unpredictable. It should be possible to enter into long - term agreements between fishermen and processing plants thereby making it possible to plan in the long term.

In addition, the fishing industry today is becoming a depleted industry that will require considerable infusions of risk capital. This is necessary for the industry to be able to fully utilize market opportunities abroad. And the opportunities for growth and development are waiting for the industry to take advantage of.

14. PREPARATION OF PRODUCT SAMPLES (p.73)

As mentioned before, an important part of the project was the presentation of products in Germany. We presented the product to consumers through a demonstration in a seafood shop. We had arranged meetings with importers where they could taste the products and fill out a questionnaire.

We knew in advance that German consumers are very quality conscious. Both freshness, salt content and degree of smoking must be right if consumers are to like and purchase the product. As a consequence of this we decided to test various variations of a product by changing the salt and smoke contents. After we had tested these products we would set up a flow chart. Included would be faults, the reasons for these and measures to be taken with respect to the German market.

14.1 PRODUCT 1

With respect to the product development part of the project, one of the products were prepared in the mini-factory (pilot plant) at the school. With assistance from teacher Otto Giskeödegaard and our advisor Per Walde we prepared recipes and produced 10 kg finished product. The raw material was obtained from Gustav Olsen in Fiskeprodukter A/S. It was 20.9 kg skinned dogfish. We filleted the fish and came up with the following numbers:

Fish quantity before filleting:	20.9 kg
Fish quantity after filleting:	13.08 kg
Actual cuttings:	6.32 kg
Loss:	1.5 kg

From these figures we calculate that the yield was 62.6% and percentage loss 7.2%. The loss was due to factors such as bloodwater, thawing water and that we weighed the fish (p.74) before filleting in the plastic wrapping.

In order for a product to have an acceptable keeping time, it is an advantage to salt the fish well. However, since Germans like a relatively mild flavor, we chose to sugar salt the fish to meet requirements for long keeping time. The procedure for sugar salting chosen was as follows:

- Ratio between fish and liters of brine was 1:1
- Half the brine was salt brine at 24 degree Baumé
- The other half consisted of water
- To 10 l finished salt brine we used 400 - 450 g sugar (amount of sugar depends on firmness of fish).

In our case it meant that the sugar brine consisted of:

- 7 l brine (24^0Bé)
- 7 l water
- 13 kg dogfish x 40 g sugar=520 g sugar

The formula for calculating the amount of salt looks like this:

$$\frac{\text{Liter brine x B}}{100 - \text{B}} = \frac{7 \text{ l x } 24}{100 - 24} = \underline{2.2 \text{ kg salt}}$$

We dipped the fish in the brine for 1 minute and then placed on racks in a car for drying and draining. Since we still did not have a smoke oven at the school, the company Fjordlaks was very helpful and let us smoke the fish in their ovens. We conferred with experts on the smoking method to be used, and were told that it would be an advantage to use the same procedure as for mackerel. If a large production should materialize in the future, it would be an advantage to standardize the method. However, having an optimum product would come first, so if other smoking methods give better results they must of course be chosen.

The fish was first cold smoked for 1 hour at 20^0. This was to give the fish a gentle start to avoid burning of the flesh. The fish was then hot smoked at 2 hours at 800.

After Fjordlaks had finished the smoking it was so late in the day that we did not have an opportunity to package the fish. It was therefore left in the cart overnight. This resulted in the surface of the fish drying out. The dry surface must not occur on the German market, a fact we were repeatedly reminded of when we visited the German importers.

The fish was then packaged the following day. The packaging material was carefully chosen with the German market in view. We bought sheets that were gold color on one side and silver color on the other. We trimmed and vacuum packed the fish.

The product was tested on fellow students, teachers and family. We wished to thoroughly test the fish and to hear people's reactions, and also to find out if the product was good enough for presentation on the German market. The results of the testing was good; everybody liked the product. The testers thought the taste was good, but they pointed out that it was too bad the fish had a dry surface skin.

To get an overview over faults with the raw material, (p.76) preparation, appearance and flavor, we have prepared a flow chart for product 1. In the chart we have attempted to find the reasons for the faults and suggest corrective measures.

Fault	Cause	Measures
Raw material:		
Old raw material	Poor availability	Agreement with vessels
Brown flesh	Long storage	Shorter storage
Dry flesh	Drying out	Better packaging
Finished product:		
Dry film around product	Drying due to late packaging	Package the fish after cooling.
Pattern on flesh	Fish placed on rack for smoking	Hang fish for smoking
Packaging:		
Light spots on sheet	Fish did not cover sheet	Smaller sheets
Loss of vacuum	Choice of wrong program	Use a more suitable program.

The finished product was carried with us to Germany. (p.77) Since we were limited in what we could carry, the agreement was that Fiskeprodukter A/S in Målöy should prepare a couple of lots of dogfish that we were to pick up at places agreed to in Germany. It is therefore difficult for us to give an analysis of procedure and processing of this product. We can, however, comment on the finished product as we received it in Germany. Two different batches of smoked dogfish were sent down.

14.2 PRODUCT 2

The first product had an appearance that was attractive to the Germans. The fish had more brown color than the fish prepared at the school and resembled the German "Schillerlocken" in the color of the flesh. The product was unfortunately much too salty. The product was packaged in gold colored foil. No sheet was used and this seemed to be just as well liked. The sun spots that appeared on the sheets were therefore avoided. Customers quickly noted, however, that the packages were much too large. For the environmentally conscious Germans it does pay to use too much packaging. Half of the wrapping foil could have been cut away.

14.3 PRODUCT 3

The second batch we received was not much of a success in Germany either, but rather the opposite. The amount of salt will contribute to the keeping ability of the product, as mentioned above. A product with little salt will therefore have a low keeping ability. That was the case with this particular product. It was furthermore shipped by air mail, and that would mean that it was not chilled during transport. When we received the shipment, ammonia production was well underway and the product was (p.78) inedible. It was vacuum packaged with sheet. We had earlier cut the fillets up in small pieces and packaged them in small packages. Now the fillets were whole and placed on large sheets (sheets of the size used for whole smoked salmon sides). We can not comment on how this portion size would have been received on the German market. It was very impractical when we operate with product samples. Another problem would probably have arisen if we had tried to get the fish into the cooling bag.

15. QUESTIONNAIRE FOR THE CONSUMER STUDY

Based on our desire to obtain the consumers opinion of the product, we prepared a questionnaire with 10 questions. We felt the questions were designed to bring out consumer opinion on product appearance and taste. We would also like to find out how they used smoked dogfish, in what price category the product would be placed and if the consumer would consider buying it again in the future.

15.1 DESIGN OF QUESTIONNAIRE

We first designed a draft questionnaire and had it commented and criticized by acquaintances and our teaching supervisor. The form was redesigned several times. It turned out that we had used a number of difficult words that not all the respondents would understand the meaning of. Some of the questions were also poorly formulated, i.e it would be difficult for the respondents to understand what we really meant. Another problem was that we had used some Norwegian sentence structures which could mean that questions could be misunderstood.

It also came out that some of the questions we considered simple to reply to were not so simple after all. This meant that we had to change the order of the questions so that there was a natural increase in difficulty in the form.

We went through the form again to see if we would get enough information from the answers to the questions. It then became obvious that some of the questions had to be revised so that the information would meet our requirements. Some questions were deleted since they had no value for us. We also had to include new questions, but others were deemed satisfactory if we added a choice of replies.

15.2 THE QUESTIONS (p.80)

The four first questions are associated with the tasting of the samples. The respondents are here asked to judge the appearance, flavor, salt content and smoke intensity of the sample.

In the next question we find out if the respondent has tasted the product before. The two next questions are to be filled out by those who knows the product from before. In question 6 and 7 we ask in which form the product had been tried (fresh, frozen, others) and how the product was used (sandwich spread, dinner, snacks, others). In question 8 we ask if they would buy the product if it was available in stores. We furthermore ask the respondent to place the product in a price class with another smoked product, and finally we ask how often the respondent eats fish (seafood).

16. CONSUMER DEMONSTRATION

16.1 IMPLEMENTATION OF CONSUMER DEMONSTRATION

To implement the demonstration we had negotiated an agreement with fishmonger H.P. Krützfeldt in Lübeck; a cosy little city in North Germany. The agreement was that we should be allowed to have demonstrations in his store for three days. He had a beautiful delicatessen store and sold everything in seafoods in addition to hot dishes that could be eaten in the store or taken home. The store is the only one of its kind in Lübeck.

We set up near the sidewalk so we could also reach casual passers-by. On the sidewalk we placed a big sign saying: Try smoked dogfish from Norway. We put aprons on and cut the fish up in small pieces placed on a tray. Curious about the reaction from passers-by, we were ready for action.

16.2 SELECTION

We would like to have as equal a representation between men and women as possible. In addition, we would also like to have a selection that represented the German population as well as possible. This was very difficult to achieve by standing on the same place and grabbing random passers-by. We are not operating with non-probability selection and it is impossible for us to estimate the probability of individual elements to be included in the selection. This means that we can not generalize the results and say that this is the opinion of German consumers.

In our case we operated with a mixture of convenience selection and quota selection. With convenience selection we mean that we take those that are in a certain area at a certain time. We asked those that were in and near the store. As a result we (p.82) can assume that we will have a certain overrepresentation of certain groups, for example housewives and pensioners. In a quota selection we would choose respondents to mirror certain ratios in the population; in our study we would like to have equal representation of men and women and to include people from all age groups.

It is , however, important to be observant of the weaknesses and the errors that can occur. These can then to a certain degree be avoided. It is usual to divide results into validity - and reliability errors.

16.3 VALIDITY ERRORS

Validity errors are tied to if the study really is measuring what the objective was to measure. A good way to get poor validity is to interview people about subjects they poor or no knowledge about since most will not admit their lack of knowledge and will therefore construct a suitable answer (response error). A common error made is to have inflated ideas about the knowledge level of ordinary people. It can also be difficult to evaluate the validity for the study with respect to future acts, since it is often difficult to distinguish between wishful thinking and realizable acts. For example, it is not certain that all those that said that they will purchase the product, will actually be able to afford to buy it.

16.4 RELIABILITY

Reliability is tied to if the study represents an actual situation, i.e. that the methods used and the persons chosen are representative for the market and the population the results (p.83) of the study are to be applied to. The concept is also tied to the fact that the study must be valid over a certain period, i.e. that it should give the same results if it was done at a later point in time.

The results of a non - representative study are distorted results. We talk about the following distortions:

Selectivity distortions can occur if the random sample is not quite random. Distortions due to dropouts can occur when a non representative of those having received the questionnaire replies. Lack-of-response distortions are a result of some of those asked will not fill out the form.

When we later are to analyze and on that basis draw conclusions, it must be made clear that the basis for decisions could be encumbered with both validity errors and reliability errors.

17. RESULTS AND ANALYSES OF THE CONSUMER STUDY (p.84)

We will first discuss the results and analyses of the product we prepared here at the school (product 1). After that we will discuss the result and analyses of the product that the company at Raudeberg made for us (product 2). Finally we will set up a comparison and analysis of the two products.

We had a total of 49 respondents in our consumer study. Seventeen of these have tested product 1 and 32 respondents have tested product 2. The reason for the difference in respondents is that we did not have any product samples left of product 1.

(Questionnaire in German used during the demonstration is attached as an appendix).

17.1 PRODUCT 1

1. What is your opinion of the appearance of the product?

Reply choice:	Very good	Good	Satisfactory	Not good	Not sat.	Tot.
Replies:	3	7	1	5	1	17
In percent:	17.6	41.2	5.9	29.4	5.9	100

A total of 41.2% of the respondents replied that the product appearance was good. A total of 11 people (64.7%) replied that the appearance of the product was very good/good/satisfactory. Six people (35.3%) replied that the appearance was not very good/not satisfactory. This shows that more people are satisfied with the appearance of the product than those that are not satisfied.

2. What is your opinion of the taste of the product?

Reply choice:	Very good	Good	Satisf.	Not good	Not satisf.	Total
Replies:	4	10	3	-	-	17
Replies in %:	23.4	58.8	17.7	-	-	100

A total of 58.8% of the respondents replied that the taste of the product was good. A total of 17 people (100%) replied that the taste of the product was very good/good/satisfactory. This shows that they all liked the taste of the product.

3. What do you think of the salt content of the product?

Reply choice :	Too strong	A little too strong	Satisf.	A little too weak	Too weak	Total
Replies	-	2	13	2	-	17
Replies in %:	-	11.8	76.4	11.8	-	100

It can be seen that 76.4% of the respondents replied that the salt content was satisfactory. Only 2 respondents (11.8%) replied that the product was a little too salty and 2 replied that it was not quite salty enough. This shows that the salt content was about right.

4. What do you think of the amount of smoke in the product?

Reply choice:	Too strong	A little too strong	Satisfied	Little weak	Too weak	Tot.
Replies:	-	1	14	2	-	17
Replies in %:	-	5.9	82.4	11.7	-	100

It can be seen that 82.4% of the respondents replied (p.86) that the amount of smoke in the product was satisfactory. Only one of the respondents replied that the product was a little too strongly smoke flavored, and two that it was not smoked enough. This means that the respondents liked the amount of smoke in the product.

5. Have you eaten dogfish before?

Reply choice:	Yes	No	Total
Replies:	5	12	17
Replies in %:	29.4	70.6	100

As many as 70.6% replied that they had not eaten dogfish before and 29.4 % had tried it before.

There is probably a misunderstanding here. We meant dogfish in general, also "Schillerlocken" (belly flaps), while the respondents were thinking of dogfish as fillets as we presented the product.

Questions 6 and 7.(For those that had eaten dogfish before).

6. How was the fish preserved?

Reply choice:	Smoked	Fresh	Other	Total
Replies:	2	1	1	4
Replies in %:	50	25	25	100

Four of five of those that had eaten dogfish before (p.87) replied to this question. The most common method of preservation of dogfish is smoking in Germany. Since two have replied smoked and one fresh; i.e. only 4 respondents, it is too few to be able to say that smoking is most common. However, from observations and conversations in Germany we know that smoking is the most common method of preservation of dogfish.

7. What do you most often use dogfish for?

Reply choice:	On bread	Dinner	Snacks	Other	Total
Replies:	2	1	1	-	4
Replies in %:	50	25	25	-	100

Four of five replied to this question. One respondent of those who had eaten dogfish before has not replied to questions 5 and 6. We believe that he/she misunderstood and jumped to question 8 which he/she should have done if dogfish had not been tried before.

This question also has too few respondents to draw any conclusions on how dogfish usually is used in Germany. However, from observations and conversations on the German market we know that dogfish is most often used on bread in small "Brötchen", or as snacks (night snacks).

8. Would you have purchased this product if it was available?

Reply choice:	Yes	Perhaps	No	Total
Replies:	7	9	1	17
Replies in % :	41.2	52.9	5.9	100

Only one of the respondents tasting the product indicated that he/she would not buy the product if it was available. Seven replied yes and nine said perhaps they would buy it if available. This means that a very high 94.1% (16) of the respondents are possible buyers of the product.

9. In which product price class would you place this product?

Reply choice:	Eel	Salmon	Mackerel	Herring	Other	Total
Replies:	4	1	4	2	4	15
Replies in % :	26.7	6.6	26.7	13.3	26.7	100

Fifteen of the 17 respondents answered this question. It was not an easy question to answer for an ordinary consumer, since they may not be completely sure of the price of the various species listed.

However, most of those we talked to knew that eel and salmon were expensive products and that mackerel and herring are cheaper products.

The prices in Lübeck when carried out the study (p.89) (11-12 April) were:

Eel : 8.35 DM/100g
Salmon : 13.50 DM/100g
Mackerel: 1.38 DM/100g
Herring : 1.80 DM/100g

We can see from the table above that there are just as many that will pay the price of eel (a relatively expensive product), as there are those that will pay the price of mackerel (a relatively inexpensive product).

The owner of the store where we had the demonstration, Mr. Mr. Krützfeld, was not particularly interested in our product when we first arrived. However, when he saw that there were many that might pay the same price as for eel, even salmon, he quickly became more interested in the product.

Two of those that marked "other" had given halibut as a suggested product price class. Halibut cost 2.68 DM/100g when we were in Lübeck. This shows that the product absolutely could be saleable with a good profit margin, since we had calculated that we must have ca 10 DM/kg for the product in order not to lose money, and a sales price to importer of 12 DM/kg.

10. How often do you eat fish?

Reply choice:	Several times/week	Once/wk	Twice/mo.	Almost never	Never	Tot.
Replies:	4	9	3	-	-	16
Replies in % :	25.4	56.3	18.7	-	-	100

That as many as 56.3% said that they eat fish once per week does not exactly jibe with the average consumption per person in Germany, which is 13.5 kg, but here we must consider the large regional differences in fish consumption in Germany. Our study was carried out in Northern Germany where the average consumption per person per year is 30 kg.

We chose to stand outside a fish shop to carry out our study, and we therefore met a large part of the real "fish lovers". Our product was judged by potential future customers, and it is exactly their opinion that counts and nobody elses!

Relationships:

To find out a little more about the answers we got, and to bring out any connections, we have chosen to examine some of the questions in the questionnaire with the help of "DataEase".

Crosschecking questions 2 and 5:

To find out if there is any connection between if they like the product well, and if they have tasted dogfish before.

No connection was found between these two questions. There were just as many who liked the product well of those that had not tasted dogfish before as of those that had tasted dogfish before.

Crosschecking questions 2 and 8:

To find out if there is any connection between if they liked the taste of the product and if they would buy it if it was available.

Three of the four who liked the product very much would have bought it if it was available, the fourth said perhaps. Six of those who answered that they liked the product well, would perhaps had bought the product if it was available, while four of those who liked the product well would have bought it.

We can see that the better they liked the product, the more sure are they that they would buy it.

Crosschecking questions 2 and 9:

To see if there is any connection between if they like this product well and if they then would give a high price for it.

Those who liked the product very much are willing to pay a price similar to that paid for mackerel and herring which are the cheapest products on our list! Those that liked the product well or found it satisfactory were willing to pay the highest price as that charged for salmon and eel. The reason for this could be that those who liked the product very much are really interested in buying it later and therefore do not want it to be too expensive, but this could only be speculations.

Crosschecking questions 2 and 10: (p.92)
To find out if those who like the product best are those who eat fish most often, i.e several times a week or once a week.

This is somewhat difficult to elucidate since only 3 of the respondents ate fish less often than once a week. However, the answers we got indicated that in fact they liked the product even if they seldom eat fish. There is a weak tendency to show that those eating fish several times a week indicated in their answers that they liked the product better than those eating fish once a week. This would in case be very positive for our study since we then have real "fish lovers" commenting on our product, and they liked it!

Conclusion Product 1.

The results of this study shows that the product absolutely has marketing possibilities. The respondents liked both the appearance, taste, salt- and smoke contents. And the price they are willing to pay for the product is not to be sneezed at.

However, when observing the respondents sampling the product, we noticed that most of them had problems in biting through the samples since there was a thick membrane on the underside of the fillets. Many grimaced when they tried to bite through it. This membrane must be eliminated before the product can be launched on the market. This can be done by hanging the fillets for smoking instead of placing them on a grate like we did.

Otherwise many of the respondents said that the product was dry; this can be improved by using a fresher raw material.

The product has a marketing potential that absolutely should be exploited, but not without the suggested changes. However, there is an element of uncertainty in the study as in all studies (p.93) using questionnaires. Were the respondents honest? Would they really have purchased the product if it was available? Perhaps the first time out of curiosity, but how about repeat purchases later? This is impossible to know without a larger and more thorough study of the product among German consumers. This should absolutely be done since we now have seen that the product has great possibilities on the German market, of course with the suggested changes.

17.2 PRODUCT 2.

1. What do you think of the appearance of the product?

Reply choice:	Very good	Good	Satisf.	Not good	Not satisf.	Tot.
Replies :	10	20	2	-	-	32
Replies in %:	31.25	62.5	6.25	-	-	100

A total of 62.5% of the respondents replied that the appearance of the product was good. Another 31.25% said that the appearance was very good and 6.25% said it was satisfactory. None of the respondents said that they were not satisfied with the appearance of the product , and we have reason to be satisfied with these results.

2. What do you think of the taste of the product?

Reply choice:	Very good	Good	Satisf.	Not good	Not satisf.	Tot.
Replies:	7	17	5	2	1	32
Replies in %:	21.9	53.1	15.6	6.3	3.1	100

A total of 53.1% replied that the taste of the product was good. Altogether, 90.6% replied that the taste was very good, good or satisfactory. Only 3 of the respondents said that they did not like the taste of the product. From the next question we found out that they did not like the product because it was too heavily salted.

3. What do you think of the salt content of the product?

Reply choice:	Too much	Little too much	Satisfied	Not quite enough	Not enough	Total
Replies:	10	13	9	-	-	32
Replies in % :	31.3	40.6	28.1	-	-	100

Only 28.1% of the respondents said they were satisfied with the salt content, 40.6 % said it was a little too salty and 31.3 % said that it was too salty. Therefore, as many as 71.9 % of the respondents were not satisfied with the salt content.

(p.95)

4. What do you think of the amount of smoke in the product?

Reply choice:	Too strong	Little too strong	Satisf.	Little too weak	Too weak	Tot.
Replies:	9	6	14	3	-	32
Replies in %:	28.1	18.7	43.8	9.4	-	100

Of the respondents, 43.8 % replied that the amount of smoke in the product was satisfactory. However, as many as 46.8 % thought the product was too heavily -, or a little too heavily smoked. This indicates that the product was rather heavily smoked and should be somewhat modified, but not enough to lose those respondents who were satisfied.

5. Have you eaten dogfish before?

Reply choice :	Yes	No	Total
Replies:	7	25	32
Replies in % :	21.9	78.1	100

As many as 78.1 % said they had not eaten dogfish before and 21.9 % had tried it earlier.

It is probable that there was a misunderstanding here since dogfish is very popular in Germany, but best known as "Schillerlocken" (belly flaps). We meant dogfish in general, also "Schillerlocken", while the respondents were thinking of dogfish as fillets as we presented our product.

Questions 6 & 7.(For those having eaten dogfish before).

6. How was the fish preserved?

Reply choice:	Smoked	Fresh	Other	Total
Replies:	4	2	1	7
Replies in % :	57.1	28.6	14.3	100

Of the seven who had eaten dogfish before, there are 4 people or 57.1 who had eaten smoked, two fresh and one as other. We have too few respondents to be able to say that smoking is the most common form of preservation in Germany, but from conversations and observations we know this to be true.

7. How do you mostly consume dogfish?

Reply choice:	On bread	Dinner	Snacks	Other	Total
Replies:	1	1	5	-	7
Replies in % :	14.3	14.3	71.4	-	100

As many as 71.4% of the respondents replied that they usually consume dogfish as snacks. From observations and conversations on the German market we know that dogfish is usually consumed on bread in small "Brõtchen" or as evening snacks.

(p.97)

8. Would you have purchased this product if it was available?

Reply choice:	Yes	Perhaps	No	Total
Replies:	18	12	2	32
Replies in % :	56.3	37.5	6.2	100

Only two of the 32 tasters said that they would not buy this product if it was available. As many as 56.3% said yes and 37.5% said perhaps. This should mean that 93.8 % (30) of the respondents are possible buyers of the product.

9. In what product price class would you place this product?

Reply choice:	Eel	Salmon	Mackerel	Herring	Other	Total
Replies:	12	2	15	2	1	32
Replies in % :	37.5	6.3	46.8	6.3	3.1	100

This question is not so easy to reply to for an ordinary consumer since they are perhaps not quite sure about the price of the various fish species listed. But most of those we spoke to knew in any case that eel and salmon are considered to be expensive products, and that mackerel and herring are rather inexpensive.

(p.98)

Prices in Lübeck when we carried out the study (11 - 12 April)

Eel	: 8.35 DM/100g
Salmon	: 13.50 DM/100g
Mackerel	: 1.38 DM/100g
Herring	: 1.80 DM/100g

We can see from the table above that most respondents (46.8%) would have paid the same price as for mackerel. But as many as 37.5% would pay as much as for eel !

This shows that the product could absolutely be saleable with a good profit margin, since we had calculated that we must have ca 10 DM/kg for the product to break even with a price to the importer 12 DM/kg.

10. How often do you eat fish (seafood)?

Reply choice:	Several times/wk	Once/wk	Couple times/mo.	Almost never	Never	Total
Replies:	12	15	5	-	-	32
Replies in % :	37.5	46.9	15.6	-	-	100

As many as 84.4 % replied that they eat fish (seafood) once a week or several times a week. This does not check well with the average consumption per year per person in Germany which is 13.5 kg. Again we have to consider the large regional differences with respect to consumption of seafood in Germany.

Connections. (p.99)

To find out more about the replies we had received, and to bring out any connections, we have also here chosen to crosscheck some of the questions in the questionnaire with the help of "DataEase".

Crosschecking questions 2 and 5.

To find out if there is any connection between liking the product well and if they had eaten dogfish before.

It came out that none of those who had eaten dogfish before gave the product top grades, while 28% of those who had not eaten dogfish gave the product top grades. The latter thought the product was good , but had nothing to compare it with since they had never eaten dogfish before. That those who had tasted dogfish before did not give the product top marks is perhaps because they did not think it stood above other dogfish products.

Crosschecking questions 2 and 8.

To find out if there is any connection between liking the taste of the product and buying it if it was available.

Seventeen of the 29 respondents who liked the product very much, liked it or found it satisfactory would have bought the product if it was available, while 12 would perhaps have bought it. Most of those replying perhaps qualified their comments with that they liked the product, but found it too salty and were therefore not sure if they would purchase it if available in the present form.

Those giving the product a poor grade replied that (p.100) they would not buy the product because it was too salty. However, one of those not liking the product replied that he would have bought the product, but only out of curiosity and never more than once.

Crosschecking questions 2 and 9.

To find out if there is any connection between liking the product well and if they then would pay a high price for it.

The results here show that 6 of the 7 that liked the product very much are willing to pay a price as high as for salmon and eel, while one is willing to pay the same price as for mackerel. Most of those liking the product well are willing to pay the same price as for mackerel. It shows that the less they liked the product, the lower the price they were willing to pay.

Crosschecking questions 2 and 10.

To find out if those liking the product best are those eating fish most often, i.e. several times a week or once a week.

Among the 27 that eat fish once a week or more often, eight have given the product a satisfactory or poor grade, while those that eat fish less often gave the product a very good or good grade. This probably shows that those eating fish often were not quite as enthusiastic about the product as they have better experience with how fish should taste.

Conclusion product 2.

Results from the study show that a majority liked the (p.101) taste of the product, but only few were satisfied with the salty taste. However, would they buy the product? Yes, in fact most replied that they would buy the product. There must be some misunderstandings since most respondents said to us that they would like to buy it, and therefore checked "yes" on the form, but only if it had a lower salt content.

Most were also willing to give a good price for the product. A total of 46.8% were willing to pay the same as for mackerel, while 37.5% would pay the same as the high-priced species salmon. According to these results, the product should definitely be marketed, but improvements must be made, especially with respect to the salt content! As the product is now, it is not marketable. It would perhaps be purchased once, but for repeat sales it is not 100% to the customers' taste!

17.3 COMPARISON BETWEEN PRODUCTS 1 AND 2.

Question 1.

As many as 64.7% thought that the appearance of product 1 was very good, good or satisfactory, while 100% thought the appearance of product 2 was very good, good or satisfactory. This means that the appearance of product 2 was better than of product 1.

The reason for this is probably that product 2 had a shiny surface and a more golden color. This is a result of the fresher raw material and better smoking of product 2. By smoking and salting a little heavier (as in product 2) the keeping time is extended and the drying out as seen in product 1 is avoided.

Question 2.

The study showed that 100% replied that they liked the (p.102) flavor of product 1 very well, well or satisfactory. Of product 2, a total of 90.6% thought the taste was very good, good or satisfactory. Those that did not like the taste of product 2 gave the reason that it was too salty.

Question 3.

With respect to the salt content of the product, a total of 76.4% thought product 1 was satisfactory and 28.1% thought product 2 was satisfactory. As many as 71.9% thought product 2 was too salty.

Here we can clearly see the difference between the two products. The result of Question 1 on product taste did not show any "large" differences between the two. However, it is obvious that when the salty flavor is poor the product flavor cannot be perfect. The salt content in the school sample must therefore be preferred.

Question 4.

As many as 82.4% said that the smoky flavor of product 1 was satisfactory, while 43.8% thought product 2 was satisfactory. This shows that product 1 must be chosen with respect to smoky flavor.

The same recipe was to have been followed in preparing the two products, but product 2 used older raw material which results in the smoke not being as well absorbed as in a fresher fish. To obtain the same smoky flavor as in product 1, the temperature must be lowered a little when using fresher raw material.

Question 5. (p.103)

Of those tasting product 1, 29.4% had eaten dogfish before in one form or another. The corresponding number for product 2 was 21.9%. This means that about the same number of "dogfish eaters" tested product 1 as product 2. There are therefore approximately the same conditions for evaluating the products among the respondents.

Question 6.

Over 50% of the test tasters of both product 1 and product 2 replied that they usually ate dogfish in the smoked form, and this is also the most common form of preservation of dogfish in Germany.

Question 7.

The analyses of this question showed that most respondents used dogfish on sandwiches or as snacks, and that it is not commonly used for dinner. From our observations in Germany, we noted that the most common use was "Schillerlocken" in small breads that "everybody" was chewing on, early and late. Otherwise it is a delicacy according to our taste! Mmmmm!

Question 8.

With respect to product 1, 94.1% answered yes or perhaps (i.e. possible buyers in the future) to the question if they would have purchased the product if it was available, while for product 2 the tctal was 93.8. It was still 56.3% that said they would buy product 2 and 41.2 product 1, but more respondent said they would not buy product 2 (6.2%) than those that said no to product 1 (5.9%).

It is possible that there are some misunderstanding in (p.104) interpreting this question with respect to product 2. Since the respondents said to us that they would like to buy the product if it was available, but not as salty as the sample tasted, and they still checked off yes on the questionnaire. We thereby did not get an evaluation of the possibilities for sales of the product as is, but for a desired product!

Question 9.

A total of 40% of the respondents replied that they were willing to give a price for the product similar to mackerel, i.e 1.38 DM/100g. However, as many as 34% said they would give the same price as eel, i.e. 8.35 DM/100g. This product should therefore have good opportunities to be profitable!

Question 10.

The results from both studies show that most of the respondents eat fish once a week; 56.35% of those tasting product 1 and 46.9% for product 2. None of our respondents eat fish less often than a couple of times a month.

Conclusion:

The analyses of the consumer study showed that product 1 must be preferred to product 2 since the latter was much too salty. For future processing the recipe must be followed very exactly to get the same product as that presented to the customers in our demonstration. We can see from this study how little it takes to make a product a success or a fiasco.

However, product 1 is not 100% successful either. To obtain a first class product only first class fresh raw material must be used. The Germans are not easy to fool, and if you have tried to fool them once, you can be sure that no more sales will be made to that account!

To get rid of the thick membrane on the bottom of the product the fillets must hang while being smoked and not being placed on a grate.

If all these conditions are met, and with the price the consumers are willing to pay, the product should have a good opportunity to succeed on the German market according to this study among consumers.

18. MEETINGS WITH THE GERMAN IMPORTERS. (p.106)

18.1 HOW TO COME IN CONTACT WITH THE GERMAN IMPORTERS?

Before we went to Germany we had in advance made arrangements to meet with about 20 importers. The fisheries trade representative in germany we were sent a long list of German importers of seafood. From this list we picked out all those that traded in dogfish. However, we also wanted to contact importers that did not handle dogfish, but who had a product line where could fit in. We sent a total of about 70 telefax messages. Many were sceptic and felt that the Germans would throw the faxes in the wastepaper basket without sending us a reply. But the result was beyond expectations, and the reply percentage was close to 100%.

Some importers wrote to say that they could not help us since they did not have dogfish in their product line. However, more than 30 of the importers would like to help us. We sat down and called all of them and tried to put together an itinerary. This was not easy, but after a day's work the itinerary was set and we had agreed on day and time for meetings with about 20 importers.

18.2 PRELIMINARY WORK BEFORE MEETING WITH THE IMPORTERS.

The preliminary work we had done before the meetings with the importers consisted of developing 2 questionnaires. One is formed as an interview. With this we wanted to get some information on the firms and also some comments about the German market from the importers point of view. We would also like to know how the importers look at Norway as a fishing nation and what they think characterize Norwegian products and suppliers. We (p.107) considered this questionnaire as a base to build on, and new questions did crop up later that we wanted to get answers for.

The other questionnaire was aimed directly at soliciting comments on the products we brought with us. After trying the product, we asked the interview objects to give all sides of the product a grade from 1 to 5 (where 1 is the best). We would like to have opinions on everything from taste, odor, texture and appearance to packaging type and - size. In addition we would like to know if there was any interest in buying the product and at what price. The importers were also given a chance to give their opinion of the products.

In the following we would like to present the results of the meetings with many of the importers. We have not included all the importers we met in this presentation for the simple reason that many of the importers we met had no interest at all in our project. These were importers that operated with completely different species and were not interested in dogfish in the future. If some of these contributed information of interest , they were included in the following presentation.

We would also like to mention that we had different samples of fish with us when visiting the various importers. Some were asked to try the "school fish" (product 1) and some the fish that was too salty (product 2). At some meetings we had samples of both products.

At the end of this presentation we will give the results of the questionnaire filled out by the importers.

(p.108)

18.1 REPORT FROM MEETING WITH IVENS KRUSE GMBH & CO IN KIEL.

This was our very first meeting. Not only was this our first meeting in this connection, but it was for both of us the very first meeting with German business. For that reason we were both anxious and a little nervous. We were anxious to see the reaction of the importers and if the itinerary we had planned could be implemented in practice.

We were close to laughter when we arrived at the company location in a typical fishing area of Kiel. The reason was first that we had to drag along all our luggage since we were going directly on the train after the meeting. Second, because we arrived in a taxi with an agitated driver who said it was the absolutely worst trip he had ever had. It ended with us driving right into the fish hall, and the driver had to walk through fish guts and other fish remnants.

At Ivens Kruse we met Herr Kalis and another partner; they were very nice people , we had a very pleasant time and much of the nervousness before the meeting was wasted.

Ivens Kruse handles all fish species both fresh and frozen. They have no product that they wish to emphasize as more important than others. Their most important supplier is the Danish firm Dan Am. They also import some from Norway and Herr Kalis estimated the quantity to be about 20 tonnes. The most important species imported by the firm from Norway were salmon, dogfish, herring and redfish. However, they did not want to bring out any characteristics of Norwegian products that would make them better than products from other countries. Quality was most important when the company was looking for new suppliers.

In the immediate future the company would first and (p.109) foremost wish to import fresh and frozen dogfish, especially belly flaps . With respect to criteria, quality was the most important. The company therefore places great emphasis on fast transport.

If the company should look into the future, they felt that redfish, salmon and herring would have the best opportunities. The reason seems to be that consumers are increasing their purchases of these species. We also asked Herr Kalis to give us his opinion of what countries would have the best opportunities as suppliers for the German market. The answer was Denmark, Norway, Sweden and Holland, and the reason was that these have a relatively short distance to the market and can therefore offer fast transport. This is a key to maintaining top quality, he said.

After finishing this part of the meeting, we tasted product 1 and received comments and had the questionnaire filled out. It turned out that Herr Kalis and his associate were very curious about the product. They liked it, but had some complaints that would have to be addressed if they were to purchase the product in the future. We were also told that it would have been better if the product had been the whole back rather than just the fillet.

Their complaints were principally associated with texture and degree of smoking. They pointed out that the somewhat hard texture was due to the fact that we had used fish that were too small. If the fillets had been larger we would have achieved the soft texture desired by the German market. The membrane around the fish was of course also mentioned; the dried skin makes a film or membrane around the fish and this makes it less attractive.

They were in general satisfied with the packaging. (p.110) However, as environmentally aware Germans they reacted on the fact that the packages were large relative to the content of the package. This is not smart marketing if the goal is to penetrate the German market with the product.

18.4 REPORT FROM MEETING WITH FRIEDRICH WILHELM LÜBBERT GMBH & CO IN BREMERHAVEN.

We had considerably more self confidence and drive when we arrived at the steps of the Lübbert company in Bremerhaven. Not only did we have several meetings behind us, but we had also carried out a two day dogfish demonstration in Lübeck and started to get the hang of things.

We were received by an elderly man who knew Aalesund quite well. We told him about the project and he was obviously impressed (probably chiefly because it was carried out by girls). Still, it was interesting and pleasant to talk with him, but we had an appointment with Herr Klöser. He was an aggressive career type with no time to spare. We soon find that out! He could unfortunately not taste the fish since he just had eaten lunch. At this time we had received a fresh supply of fish and would like him to taste both types. We could then afterwards compare the two products and draw useful conclusions. Herr Klöser then agreed that he would taste the fish later and send us the filled out questionnaires.

The Lübbert company is a relatively large seafood firm in

Germany. They handle fresh and frozen seafood. Herring, pollock, redfish, dogfish and salmon are the most important products for the company. They import as much as 20,000 tonnes from Norway consisting of the above mentioned species and also mackerel (p.111) and lumpfish. In contrast to the firm Ivens Kruse in Kiel, Lübbert was of the opinion that the quality of seafood from Norway was considerably better than from other countries supplying the German market.

The firm imports most of their dogfish from USA and England. If imports from Norway should increase, they would like to have frozen belly flaps. The criteria used are quality and correct size of the fish. Herr Klöser said that they can pay well for seafood in Germany since when quality and size is right, the German consumer is willing to pay a high price for the product. Timely deliveries are also emphasized in the choice of suppliers. At the present time Northern Seafood is the most important supplier to Lübbert.

Salmon is the product with the best outlook for the future in the German market. The reason is that it is well established in the market and has achieved customer loyalty. This will only increase in the future, according to Herr Klöser. he also feels that Norway has a bright future as a supplier in the future. His opinion is that Iceland and the Scandinavian countries will dominate the German market, first and foremost because the trawler fleets to a larger degree can deliver catches directly to the importing countries.

We were again reminded that it would have been better to use whole backs for our products. It would have resulted in a juicier product and prevented excessive drying out. Herr Klöser also graded the two products as follows:

Product 1 has a good appearance and the flavor is also (p.112) acceptable. The chief objection is that the texture is too hard.

He is not pleased with the appearance of Product 2. The taste is not acceptable and is given the lowest grade primarily because it is too salty. The texture is a little better the Product 1. In spite of this , both the odor and the quality of the product is satisfactory.

The packaging of the product is much too large relative to the content, but otherwise the design, material used and color is acceptable.

Consequently, as the product is today Herr Klöser would not have purchased it.

18.5 REPORT FROM MEETING WITH F.G.WENDT IN CUXHAVEN.

The meeting in Cuxhaven was one of the meetings we had not planned before leaving for Germany. The reason is that we travelled to Cuxhaven in desperation over having some of our itinerary interrupted in Bremerhaven. We had namely been through temperature changes from $+25^0$C to -5^0C. A change in the weather like that could not be tolerated even by two tough northerners, and the result was that we were flat on our backs for 3 long days. Three important meetings had to be cancelled and to try to minimize the damage , we contacted several companies handling dogfish in Cuxhaven. Cuxhaven is also the most important port in Germany so we thought earlier that it was a shame that we had no interviews set up there. It was not easy to set up a meeting on such short notice, but after several telephone calls we were told that F.G.Wendt in Cuxhaven could meet with us on the day we had an opportunity to travel to this city.

We arrived and went straight to the processing area. We went over to the first man we saw in white work clothes and asked him where we could find the boss. I am the boss, was the answer we got. A little red in the face we followed him to the office where we met wife who does all the paper work.

F.G.Wendt has his own smoke house , but he also deals with fresh fish. He buys the fish from German importers. The most important products are redfish, haddock and cod for fresh fish, and herring, mackerel and dogfish for smoked products.

The company imports from Norway and he estimated the quantity to about 50 tonnes at a value of 100,000 DM. From Norway they import mackerel, herring, halibut, redfish and haddock. When we asked him if he had any complaints about the Norwegian products, he said that halibut was often poorly graded. Redfish and haddock is of good quality , but is often poorly cut. On the average he thinks the quality is very good and Herr Wendt would like to buy more fish from Norway.

He could also imagine buying Norwegian dogfish. At the present time USA and England supply the dogfish and F.G.Wendt would like to buy frozen belly flaps from Norway. Herr Wendt predicts a bright future for all products because of the heavy demand on the German market.

It became a laborious process when Herr Wendt was asked to taste our product (product 2). He had himself been operating a smokehouse for many years and it was obvious he knew everything there was to know. He studied the product, smelled it and tore it up in long strips. He finally tasted it. We were anxiously awaiting his comments, and were happy to hear that the product was well smoked.

He was also satisfied with odor, appearance and (p.114) quality. However, the salt content was as we already knew much too high, and the taste therefore suffers. The product was furthermore too dry and we were again told that this could be avoided by using larger fish.

With respect to the packaging, Herr Wendt pointed to the "sun spots" on the plate as a result of placing too little fish on a relatively large plate.

F.G.Wendt smokes his own fish and he would therefore not be interested in buying the product. It was interesting to register that Herr Wendt thought it was a good idea to smoke the fillets and it is not impossible that he will try it himself.

18.6 REPORT FROM MEETING WITH ONDA HÖFFERLE GMBH & CO IN HAMBURG

From Bremerhaven we travelled to Hamburg. The first meeting was with Onda Höfferle. Earlier we had found on some occasions that we had arrived at scheduled meetings and found that the company was of no interest. When we arrived at the offices of Onda Höfferle we were sure this was the case here since the whole office was filled with wine bottles and ornaments.

However, we were told that the company really was in the seafood marketing business, but we thought it would be of no interest since they had specialized in imports from South America and other low cost countries. The products marketed included hake and dogfish. (p.115)

We really just had in mind to move on since Herr Höfferle mentioned that he would not sample the test product due to lack of expertise to judge it. Instead he would present us to a co-worker whom he felt had a better background to judge the fish. He followed us downstairs where we met Herr Turgut Candan. He was in charge of wine sales for the company. We did not know if we should laugh or cry, but after having talked to Herr Candan we became more interested. It turned out that Herr Candan had experience with dogfish from Turkey. He had among activities held courses in skinning, filleting and preservation of dogfish.

We spent more than 2 hours talking to Herr Candan. We told him about the steps in our process for preparing the samples and listened to Herr Candan's comments. He would taste the product later, but we have unfortunately not received the questionnaire from this meeting and can not comment on Herr Candan's opinion of the sample. We can, however, contribute some knowledge gleaned from him regarding dogfish.

When we were discussing our product 1, he did react to the information that we had dipped the fillets in the brine for 1 minute. He thought that we should leave the fillets in the brine for one half to one hour and rather dilute the brine by half. He thought the color was a little light and that this could be corrected by hanging the fillets while smoking instead of placing them on a grate. He also said that the use of cherry - and beech wood to generate smoke gave more color to the flesh.

His opinion is that small fillets should always hang (p.116) during smoking. Larger fillets can also be placed on a grate. It is also important that the smoke can freely flow through and around the fish. If the fillets are small, they can easily be burned if this is not the case. The back should have a weight of 1.5 kg. He also discussed how important it is to separate the belly flaps from the backs since the flesh in the belly flaps has a lower fat content than the meat on the back. Different salting and smoking methods must also be used in the preservation of belly flaps and backs of dogfish. Herr Candan also mentioned that a smoked product that was fresh when smoked can be frozen as a smoked product. Dogfish that was frozen before smoking can, however, not be frozen as a smoked product.

Herr Candan also discussed one problem that may crop up, namely the marketing of "imitation" dogfish. This can be exposed by checking to see if the fish has two spikes. In addition, the belly flaps will always curl up during smoking in "genuine" dogfish. Examples of sharks being sold as dogfish are smooth dogfish and similar small shark species.

Herr Candan also mentioned the import of live dogfish from Turkey. The disadvantage is that the distances are long and water would have to be changed 4 to 5 times.

18.7 REPORT FROM MEETING WITH AARFS GMBH IN HAMBURG.

Arfs was a company similar to Onda Höfferle in many ways. They had in common that they both only imported from South American and other low cost countries. Arfs furthermore operated chiefly with frozen hake in blocks. Customers are large German and European processors being supplied with frozen hake by the company.

In South America the company is supplied by large fish (p.117) processors like Venhusa and Mellico with processing capacities large enough to supply Arfs with the quantities needed to meet the demand from German and European processors.

In the future Herr Dieter Meyer feels that frozen and smoked products will have the best chances to do well in the market place. The reason is that they require little labor for preparation in the home.

The next phase in the meeting with Arfs was interesting and a little exciting. Herr Dieter Meyer called together the whole staff in the company dining room to taste our product. Together they were to give us their opinion of the product. A total of eleven people were gathered in the dining room. We hoped that the samples (product 2) had not changed flavor and perhaps would taste like ammonia. This had not happened and the only complaint was the high salt content mentioned before.

The employees of Arfs had a very similar sense of taste to the Germans that had tasted the product before. It is too salty, we must have beer, was their comment. Otherwise they had surprisingly little criticism of the product (could our presence entail that the employees were extra positive to the product?)

They were very pleased with the appearance of the product and they also emphasized our choice of packaging. They felt that the gold colored plate would have a psychological effect since consumers would associate it with salmon, and that was good! The price we had set on the product was also deemed acceptable. They thought that smoking the fillets was a good idea.

18.8 REPORT FROM MEETING WITH ANDREAS SIMONSEN GMBH IN HAMBURG

From a positive meeting with Arfs we carried on to the firm Andreas Simonsen GmbH. There our increased confidence in the product should be destroyed. The company had all the common seafood species found on the German market in their product line (salmon, herring, mackerel, haddock, redfish, pollock, halibut, trout, flounder, Dover sole, wolffish, angler fish, dogfish etc.

Fresh fish is more important than frozen for the company, and herring and salmon are the most profitable products. From Norway the company imports about 2,500 tonnes/year, and Herr Simonsen estimated the value to about 25 million DM. He feels that the quality of Norwegian fish in general is high, but that the prices due to EC duties are relatively high. This is what characterize the Norwegian products relative to products from other countries. However, the good quality of the Norwegian products compensates for the price, and Herr Simonsen would like to import more from Norway. He also thinks that the import from Norway to Germany will continue to increase.

The company would also like to buy fresh and frozen dogfish, and they would like both belly flaps and backs. The Norwegian firms Leröy, Domstein, Leif A. Larsen and Vikenco supply them with dogfish from Norway. In Denmark the suppliers are Fonfish, Hesselholt, Thorfisch, Dan-Am and Hausgard. Herr Simonsen set high demands to the products and he requires that very fresh raw material is used and that processing sanitation is high. Reliability is the most important characteristic of a supplier.

As many others also have told us, Herr Simonsen claims (p.119) that exactly the product types he handles will have the best prospects for the future. He said that fresh fish will survive in the future because an increasing demand for quality can be noted in the German market. The country with the best future prospects is Norway. The reason is, according to Herr Simonsen, that we have clean waters and large resources.

When Herr Simonsen tasted our sample (product 2) and we heard his opinion on products of this type on the German market, we became both dejected and angry. Herr Simonsen took a bite and made a terrible face. We told him about our difficult situation and that we had received a sample that was too salty. However, we had made a product ourselves that had a good flavor, that the inhabitants of Lübeck had received it well and that they would buy it in the future. However, Herr Simonsen felt that the people of Lübeck did not know anything and that the product would never be successful on the German market.

The discussion continued and Herr Simonsen told us that Norwegians are so "posh" or "delicate" that they cannot stand to work with products that smell during processing,like dogfish. In addition, Norwegians have no idea about secondary processing; this was left to the Danes. In the next breath he said that Norwegians should wake up and start thinking about added value products. We of course agreed with this statement since this is the objective of our current project. We therefore decided that we better try to forget Herr Simonsens statements (contradictions) and continue to work on something we ourselves believed in and that many other Germans believed in.

(p.120)

18.9 REPORT FROM MEETING WITH FODECO HANDELSGESELLSCHAFT MBH & CO IN HAMBURG.

From a rather depressing meeting with Herr Simonsen we next visited another Hamburg company, Fodeco. We had a pleasant and much more hopeful meeting with Messrs Peter Specka and Andreas Berthold. We first had a long talk about Aalesund since Herr berthold had been to Aalesund on business the day before.

Fodeco has a long list of species in the their product assortment. From Norway the company imports Greenland halibut (turbot), mackerel, cod fillets, redfish fillets and pollock fillets. The quantity imported from Norway is estimated at 2000 t with a value of 8 mill DM. The product of most importance for the company is Greenland halibut. Products from factory freezer trawlers are often considered to be poorly processed, especially interleaved fillets (fillets packaged in layers with plastic film between layers). However, in general they feel that the quality of Norwegian fish is very good and they could consider importing more in the future. The most important supplier to the company is Kurt F. Löseth in Aalesund. They were chosen because they give very good service. In addition, they emphasize good communication so that important information is available at any time and they also have good price offers for their products.

Even if the company does not have dogfish in their product selection at the present time, they are receptive to imports of dogfish from Norway. They would then like to import frozen belly flaps. They would require that the raw material is fresh, good sanitary conditions during processing, exact grading and good packaging. Furthermore, the supplier must be serious, reliable and flexible.

The products predicted to have the best opportunities (p.121) in the future by Herr Specka and Herr Berthold are fish fillets, possibly prepared in portion packs for use in microwave ovens. There is definitely an increasing demand for these products. Norway and Iceland are the countries that will make most progress as suppliers of seafoods, since these countries have large processing facilities for fillets.

When we came to the tasting demonstration, we were no longer anxious about the reactions from the two gentlemen. We knew what the reaction would be and we knew what was "wrong" with the product. The only element of uncertainty was if we should also be unfortunate enough to have ammonia flavors and odors in the product. This was not the case and the only advantage of having the product too salty was that it kept longer without quality reduction.

It can be seen that the product presentation had developed into something of a nightmare for us. We thought it was very embarrassing, and it was absolutely a poor way of presenting fish from Norway. Something had to be done; we had to get better fish for our next visit.

18.10 REPORT FROM MEETING WITH CARL MAASSEN IN DÜSSELDORF.

When we came to Düsseldorf there had been several holidays in Germany. In this period our suppliers in Målöy had managed to prepare a new batch of smoked dogfish and sent it to us. On the telephone we were told that the product was very good , and it was with great expectations we arrived at Carl Maassen.

Carl Maassen was an unbelievably pleasant elderly (p.122) gentleman. In addition to his importing business, he also owns a beautiful seafood and delicatessen store in the center of Düsseldorf and a couple of seafood restaurants with an excellent reputation. The importing company deals mostly with fresh fish. This includes fish from the North Sea, the Atlantic Ocean, the Mediterranean and from fresh waters. In addition the company handles live lobsters.

From Norway Carl Maassen imports about 40 t salmon at a value of about 500,000 DM. That the quality is right and deliveries reliable are the most important criteria for choosing a supplier. He did not know if he would import dogfish in the future, but in case he would take frozen products since he smokes all fish himself.

A fish species that will be of increasing importance on the German marked is monkfish. The beautiful white and fresh meat of the monkfish will be attractive to the German consumer and it will become very popular, according to Herr Maassen. He feels that Denmark, Holland and Norway will be the most important supplier countries since quality and service is good in these countries.

We then came to the tasting part of the visit and asked if they had received a shipment of smoked dogfish from Norway. That they had, and a box was brought into the office. We opened it and discovered to our surprise that the fish was packed on large plates and that the fillets were whole and not cut into smaller pieces like the last shipment. We would never be able to get the fish into the insulated cooling bag. However, we did not have to worry about that problem for when we opened the packages, the odor of ammonia was very strong. We quickly removed the samples from the office. First of all, the fish was lightly salted and when it was transported by plane without refrigeration the liberation (p.123) of ammonia had started.

We suddenly found ourselves in a dilemma. Further plans were that the trip should go to the southernmost part of the country. There we were to visit a number of companies, and we were very interested in finding out if there were any substantial differences in the attitudes of importers to the product in the north and the south. On our way home, we had also planned to re-visit some companies we had seen earlier in order to present a better product and to see if the interest was any greater. Now we were in the situation that we had no product to present. We inquired if it was possible to have a new shipment sent, but this could unfortunately not be done. We therefore decided to cut out the visits in the north, but that we would carry out the visits in the south.

18.11 REPORT FROM MEETING WITH STUTTGARTER FISCHGROSSHANDEL, CARL MOLL GMBH IN STUTTGART.

Stuttgarter Fischgrosshandel has 46 employees. The company has a product assortment of about 800 products divided into 24 groups. It includes in addition to fish also complementary items like salads, spices, wines etc. The customers are specialty stores for seafood, grocery stores, shopping centers, hotels and pensions, family households, canteens, institutions and butchers.

The company supplies both fresh- and saltwater fish in fresh, frozen and processed forms. They do not import directly from abroad, but get their seafood products from large importers in North Germany. These include Levin and Weserfisch in Bremerhaven and Hussmann and Hahn in Cuxhaven.

The most important item in their product line is fresh salmon from Norway, but they also import halibut and crab from Norway. The quantity imported from Norway is about 120 t with a value of 2 mill kroner. In the future the company will increase their purchases of seafood from Norway since the believe there are large untapped resources in Norwegian waters. Mowi is the largest Norwegian supplier of fish because they offer good quality at good prices, and they are also experts in their field. Good grading and the fact that fish can be purchased in packages of 5 and 10 kg are important factors.

Stuttgarter Fischgrosshandel sold in 1990: 2804 kg smoked dogfish (seeaal) and 11,620 kg Schillerlocken. They only sold 600 kg fresh dogfish, but they could have sold much more if the product was available!! They would also like to import more fresh dogfish from Norway. In this connection we also discussed transport from Norway to Germany. Herr Klaiber said that the long distance is a serious problem. Seafood sent from Norway on a Wednesday is in Kiel on Friday, in Cuxhaven on Saturday and in Stuttgart on Monday. It is obvious that a long transport like this will influence the quality of the product. If the fish had been sent from Oslo by plane, it would have been in Stuttgart the same evening. This would of course lead to higher costs, but Germans are so quality conscious that they are willing to pay more for the fish if they get a better quality product, said Herr Klaiber.

Farmed fish will dominate the market to a greater degree in the future as fish resources in the oceans diminish. We asked which countries would have the best prospects as suppliers of fish to the south German market, and Herr Klaiber is of the opinion that France is number one due to the short distances and because they have a broad product selection at good prices. On the next places he listed Holland, Denmark and Norway.

We also asked what Herr Klaiber thought of vacuum packed products on the German market. He did not believe these would be successful since Germans are only used to buy their products in fresh form which would be difficult to change. They would also be very sceptical as to the date stamp on the packages. Germans would never buy a product if the date was exceeded by one or two days. They almost always go to a fresh fish counter where they can be assured of top quality. Herr Klaiber also thought that consumers would notice a difference in taste between a product having been stored for perhaps 10-18 days under vacuum vs a product only 2-3 days old in a fresh fish counter. It should be remembered that the taste is always evaluated first when the German consumer is buying a product, and therefore Herr Klaiber thinks that in almost all cases the consumer will choose a fresh rather than a vacuum packed product.

18.12 REPORT FROM MEETING WITH NORDSEE DEUTSCHE HOCHSEEFISCHEREI GMBH IN STUTTGART.

The next meeting in Stuttgart was with one of the divisions of Nordsee. In Germany Nordsee is a large company with retail stores in many German cities. We unfortunately had to cancel a meeting with the head office in Bremerhaven due to illness and would therefore like to visit one of the divisions.

We talked to Herr Domseck who was in charge of the retail outlet in Stuttgart. Only fresh fish is sold and it all comes from Nordsee in Bremerhaven. The product they sell most of is fresh salmon from Norway. Before Christmas salmon is even sold as one of very few products in vacuum packages. In total the store sells about 700 kg Norwegian seafood products a year. Since (p.126) Norwegian products is of high quality , the store will also in the future buy Norwegian products. Denmark is today the largest supplier to Nordsee.

UNEDITED TRANSLATION
For information only
TRADUCTION NON REVISEE
Information seulement

Herr Domseck is uncertain if he would import Norwegian smoked dogfish. It would in case be Schillerlocken.

Denmark, Greenland and Norway will be the largest suppliers of seafood to the German market in the future. Boneless fresh fish will become the most popular product, according to Herr Domseck in Nordsee in Stuttgart.

18.13 REPORT FROM MEETING WITH FERDINAND BIERBICHLER OGH IN STEPHANKIRCHEN.

Stephankirchen is located far south in Germany not far from Munich. In this cosy city we should have our last meeting in this round. The meeting was with the firm Ferdinand Bierbichler, and we had an appointment with herr Bierbichler personally.

The company handles fresh, frozen and smoked products and in addition Seafood salads and marinates. Fresh fish is the largest product group. Ferdinand Bierbichler imports ca 60 t at a value of 800,000 DM. Salmon and herring are the most important products purchased from Norway.But as with many fish companies in the south, the products come via Bremerhaven or Cuxhaven.

We also ask Herr Bierbichler if he can notice any difference in products from Norway compared with products from other countries. We get the same answer as we got from the two firms in Stuttgart that they can not notice any difference. But as Herr Bierbuchler says: "we only buy the best". This company has their own laboratory where the quality of the seafood they buy is checked. This type of testing is called TB in Germany. In the future they will continue to buy fish from Norway since the quality and price is agreeable. Mowi, West Fish and Terra Seafood are the most important suppliers. In addition to quality and price, the company set high demands to punctual and assured deliveries.

The company would like to import dogfish from Norway , both frozen fillets and frozen belly flaps. Herr Bierbichler mentions how important it is that the belly flaps are the right size for smoking. With respect to smoking the fish in Norway, he feels that the transport time is too long. It takes 3-4 days before the fish is at the fish processors in South Germany. At this point the product should already be with the consumers, but instead it is at a wholesaler who then sends it to the retailer where it perhaps will kept for one or two days before being sold to consumers. At this point it would not be of the best quality demanded by the German consumer, according to Herr Bierbichler.

The trends in the seafood trade is first and foremost that there will be an increased demand for typical delicatessen products; often in a high price class. This would include species like salmon, wolffish, monkfish and shrimp. There will be a trend towards natural foods without additives like fish. The health - and environment conscious Germans are willing to buy expensive products as long as they are good for your health and for the environment. In the restaurant market there will be a noticeable increase in demand for such high value products.

This company in South Germany buy most of their fish (p.128) from France. They will continue to do so in the future because the transport time is short and the quality high. Norway, Denmark and Ireland are next in line to be important suppliers. Their competitive advantage,in addition to being able to deliver products of equal quality, is that they can communicate better with the German companies since they often know the language or English can be used. The company had attempted to import from Mediterranean countries, but with little success since the suppliers could not meet delivery deadlines and the quality was often poor.

The last question we asked was : "Why do you eat so little fish in South Germany?" The answer was habit, tradition and transport. However, consumption is on the way up and will increase further in the future.

19. RESULTS AND ANALYSES OF THE PRODUCT STUDY AT IMPORTERS.

In the following we will summarize the importers' opinion of the product. A total of 10 importers tasted the product. Among these ten there were two that tried product 1, and these are included in the analysis together with the eight others that tasted product 2. The importers graded the product with respect to appearance, flavor, salt content, smoke concentration etc. They also graded the packaging with respect to size, construction, material and color. In the following we will present the results of the study and attempt to draw conclusions.

19.1 THE PRODUCT

Appearance:

Grade	1	2	3	4	5	Total
Replies	5	3	1	1	-	10
Replies in %:	50	30	10	10	-	100

Exactly one half of the importers was 100% satisfied with the appearance of the product. We can speculate that the two that were not satisfied with the appearance could have been the two that tried product 1 since this product had a rather pale appearance. If this is the case, we can be very pleased with the appearance of product 1.

Flavor:

Grade	1	2	3	4	5	Total
Replies	-	2	2	5	1	10
Replies in %	-	20	20	50	10	100

From these values we can see that most of the importers did not like the flavor of the product. The reason for this will become clear when we ask about other product specifications.

Again we dare to speculate about these values. The background for these speculations is that two importers tasted product 1, and we know that this product had a salt content that to a greater degree satisfied German taste. We therefore try the conclusion that the two who replied that the flavor was good had tasted this product. The residual 20% who graded the product as average and the 60% who did not like the flavor had probably tasted product 2.

Salt content:

Grade	1	2	3	4	5	Total
Replies	1	1	-	1	7	10
Replies in %	10	10	-	10	70	100

With these numbers we do not have to speculate; we dare to say that there is a clear difference in flavor between the two products. The two who replied that they thought the salt content was right must have tasted product 1, while the 80% who said the salt content was not acceptable have tasted product 2. The conclusion is therefore that product 2 is not salted to their taste while product 1 seems to satisfy the German demand for salt content.
This is still speculations since only two have tasted product 1.

Smoke content:

Grade	1	2	3	4	5	Total
Replies	2	2	5	1	-	10
Replies in %	20	20	50	10	-	100

The bulk of the respondents (50%) said that the product was average well smoked. A total of 40% of the importers replied that the degree of smoking was good or very good. One of the importers was not satisfied with the smoking. The reason we are not pointing out differences between the two products is that,in contrast to the salt content in the product, the degree of smoking was quite similar in the beginning, at least according to the recipe. The conclusion is that a better smoking method must be found in future product development studies.

Texture:

Grade	1	2	3	4	5	Total
Replies	1	-	5	2	2	10
Replies in %	10	-	50	20	20	100

According to these results, it appears as if the importers were not satisfied with the texture either. Half said they were satisfied on average, while 40% said the texture was not good. This indicates that the texture must be improved considerably if the German importers are to buy the product.

Odor: (p.132)

Grade	1	2	3	4	5	Total
Replies	1	8	1	-	-	10
Replies in %	10	80	10	-	-	100

According to the opinion of the German importers the product has a very acceptable odor. As many as 90% approve while one importer classify it as average. This should indicate that a good raw material was used. The conclusion must be that we have been able to satisfy German demands to odor. Since the raw material is decisive for achieving a pleasant odor, it demonstrates the importance of using only the very best raw material also for processing smoked products.

Quality:

Grade	1	2	3	4	5	Total
Replies	-	4	3	3	-	10
Replies in %	-	40	30	30	-	100

This is a product in the middle with respect to quality. It did not get any very high or very low scores. Someone with a knowledge of the German market will right away conclude that this is not good enough. Only the best is good enough there. However, the product was not rejected, and when we know that the salt content was not acceptable, there should be some hope with respect to quality.

19.2 THE PACKAGING

Size:

Grade	1	2	3	4	5	Total
Replies	1	4	-	2	3	10
Replies in %	10	40	-	20	30	100

It can be seen that there were divergent views on the size of the package. We believe the explanation and conclusion must be that some importers are more conscious of Germany's increasing concern about the environment. Germans are often very environmentally aware when making purchases. Therefore, packaging should not be wasted and the material should be environmentally friendly. This is something we had not thought much about before we came to Germany and something we should have been aware of when developing the packaging.

Design (construction):

Grade	1	2	3	4	5	Total
Replies	-	3	6	-	-	9
Replies in %	-	33	66	-	-	100

From these grades we can see that the design of the product packaging was approved, but it is still not quite tops. We will here mention that some of the importers missed a label, and this could be the reason they are not completely satisfied. However, this is just speculation, so we draw the conclusion that during further product development more work must be done in designing the package.

Material:

Grade	1	2	3	4	5	Total
Replies	1	5	3	-	-	9
Replies in %	11	55	33	-	-	100

All the respondents gave the packaging material passing grades and 66% feels it is good or very good. We should therefore be pleased with the results, but we should look to the future and spot trends in plenty of time. This environmentally friendly material is here to stay, and consumers will be more and more environmentally conscious.

Color:

Grade	1	2	3	4	5	Total
Replies	2	2	1	4	-	9
Replies in %	22	22	11	44	-	100

There is a spread in importer's opinion of the color of the package. This can be due to individual tastes. However, the 44% that did not like the color felt that the gold color did not suit this product. By including the respondent who thought the color was fairly good, well over half were not satisfied. One can speculate that another color would have been liked better, but various color combinations must be tried to come up with a successful package.

19.3 PRICE

Did the importers think that 12 DM/kg was a suitable price for the product?

Reply choice	Yes	No	Total
Replies	5	5	10
Replies in %	50	50	100

We can see from the results that there are divided opinions about the price. Half meant the price was acceptable. The other half consists of those that could have paid more. Some in the no group felt the price was too high for the product as it was presented to them. The conclusion must be that there are opportunities for getting a higher price on the German market.

19.4 BUYER INTEREST

Would the importers have bought the product if it was on the market?

Reply choice	Yes	No	Total
Replies	2	5	7
Replies in %	29	71	100

Unfortunately three of the importers did not answer this question. We can speculate about the reason, but it could be because they were not sure and did not know if they would import the product. Overall the numbers look bad for the product. Since the buyers will decide if the product will survive in the future, it doe not seem too hopeful. We were of course very interested to know why they would or would not buy the product.

We therefore asked: (p.136)
Why buy the product?

The answers we got was that to attempt to utilize the backs in this way was a good idea, and in addition the product had a nice appearance. Those that were interested also said they would buy the product because they were curious.

Why not buy the product?

Many importers said that this product would be difficult to sell on the German market since consumers did not know products like "dornhai" (dogfish), but as Schillerlocken (thew belly flaps of the dogfish). Schillerlocken have an entirely different appearance.

Some also meant that had it been whole backs instead of fillets the interest would have been greater. It would then be easier to prevent the product from drying out and a better texture would be achieved.

It was further mentioned that the product was too dry and too salty. In addition, they were not satisfied with the texture which they meant was much too hard.

That the product was vacuum packed also played a decisive role when they were deciding if they wished to buy the product. Vacuum packed fish is not usual on the German market where almost all fish is sold as fresh or frozen to the consumers. If a vacuum packed product was to be accepted, the packages would in any case have to be smaller than those we had used.

19.5 EVALUATION (p.137)

The conclusion regarding this product must be that in spite of the fact that some sides of the product were positively received by the importers, no attempts should be made to market the product in the present condition. A number of things mentioned above must be improved. The opinion of the importers is that it would be better to smoke the whole backs since this is a known product in Germany.

20. CONCLUSION

The Norwegian fishing industry has in recent years been hit by resource shortages,and in order to supplement the lack of resources of our most valuable commercial species, the interest in bycatches has increased considerably. Commercial utilization of bycatches could increase income opportunities for the harvesting and processing industries without exploiting the resources above present levels.

It is furthermore a high priority objective for the Norwegian seafood industry to increase the degree of processing and thereby the value added component. Since it now appears that the European Economic Zone (EEZ) agreement with duty free access to the EC market will be a reality, there are no longer any excuses for sending raw materials out of the country and letting others do the value - added processing.

Smoked dogfish is an established product in Germany and represents an opportunity for increasing the value - added component for this species.

Our studies on smoked dogfish fillets among German consumers showed that there was definitely an interest in the product. The results of the study also showed that product 1 must be preferred since product 2 was definitely too salty. However, product 1 was not 100% in the mind of the consumers either and must therefore be improved.

The product was too dry as a result of the raw material not being quite fresh. This must be taken into consideration when processing is done in the future, and fresh raw material must always be used. In addition, the product had a thick membrane on the underside as a result of smoking the fillets while lying on a grate. This must be avoided by hanging the fillets for smoking as done by the Germans when smoking Schillerlocken.

If all these conditions are met in future processing (p.139) trials, the product should have a good opportunity to succeed on the German market in consumers opinion.

The product studies at German importers gave a different result than the consumer study. Several of the importers thought that to utilize the backs by making fillets was a good idea. However, it would probably be difficult to sell on the German market since consumers are not familiar with "Dornhai" (dogfish). They can therefore not associate it with the popular product Schillerlocken since hardly any consumer knows from which fish species it is made.

Some voiced the opinion that the interest for whole backs would be greater than for fillets since the consumers easier can recognize the product. In addition it would be easier to prevent the product from drying out and thereby achieve a better texture.

That the product was vacuum packed also had a decisive influence on their evaluation. Vacuum packed fish is not common on the German market where practically all fish is sold fresh or frozen to the consumers. In the opinion of the importers, there are therefore better opportunities for exports of smoked dogfish backs and Schillerlocken in the fresh form than for exports of vacuum packed dogfish fillets.

The contrasting opinions among consumers and importers can be quite confusing, but it should be remembered that most of the importers were presented with product 2 which was judged lower by consumers than product 1.

Our recommendation is therefore that the product idea should absolutely not be rejected, but that thorough studies of the product must be made in the German market. Product samples must then of course be 100% perfect and prepared as suggested above.

Consumer demand for smoked dogfish backs and especially Schillerlocken is high on the German market. If studies should show that smoked dogfish fillets do not have a future, the opportunities are there for exports of Schillerlocken and dogfish backs ("geräucherten Seeaal - rucken"), and it should absolutely be utilized at the maximum.

In that case we must consider that we are in competition with German and Danish processors with long experience in this area. But don't despair, the demand from Danish and German importers for frozen or fresh raw material is increasing, and by processing this raw material here at home, we have a good opportunity to take our share of smoked dogfish on the German market.

LITERATURE

(p.141)

Blom/Frammes/Thjöme: Marketing management

Carl A. Solberg: Export marketing

Didir Rigault: EC Rules

Ö.Dahl/K.Habert: Meeting between cultures.

Thorbjörn Pedersen: Processes and products in the Norwegian fishing industry.

Finn Nordstrand: Fishing for, and marketing of, dogfish from Målöy, 1925 - 1975

Per Pethon: Aschehougs Large Book on Fishes.

Dagens Næringsliv: Theme issue on Germany (8.Nov.1990)

FIMA-Publication Series: Volume 20; Fisheries Science.

Möreforskning(Research): Working Paper;Bycatches from the longline fleet (1990).

Fischmagazin: Various articles (1990)

Seafood International: Various articles (June 1990)

Export Council for Fresh fish: Various statistics (1990)

Statistisches Bundesamt in Wiesbaden: Various statistics.